DISCLAIMER: These Standard Operating Procedures (SOP's) are for the exclusive use of Navy Public Works Center (PWC) Norfolk. They are promulgated as guidance for their NAVFAC Commands. If intended to be used by other activities, they must be tailored to each activity's particular requirements and must be reviewed/approved by the activity's safety professionals prior to use.

NAVY PUBLIC WORKS CENTER

NORFOLK, VIRGINIA

UTILITIES DEPARTMENT

STANDARD OPERATING PROCEDURE / JOB HAZARD ANALYSIS

TITLE

HAZARDOUS ENERGY CONTROL (LOCKOUT, TAGOUT)

PROCEDURE NUMBER

WC 622 HVE 013

SIGNED:_____

(DATE)

APPROVED:_____

(DATE)

SAFETY PROFESSIONAL:_____

(DATE)

MANAGEMENT OFFICIAL:_____

(DATE)

REVISION B

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DISTRIBUTION

CODE	REV/DATE	REV/DATE	REV/DATE	REV/DATE	REV/DATE	REV/DATE	REV/DATE
601.C3							
620							
622							
610.E1							
622.1							
622.2							
622.3							
622.4							
622.5							

REVISIONS

REV	DESCRIPTION	SIGNATURE	DATE
A	Initial Issue.		
B	WC 627 Foreman can write switching package for NH-94/NH-95 work.	D. Midgett	2/5/96
	WC 625 Foreman can write switching package for work on piers.		
	WC 624 personnel can operate switches as long as there is a WC 622 representative supervising on site.		

HAZARDOUS ENERGY CONTROL (LOCKOUT, TAGOUT)

Purpose:

Establish a procedure to deenergize electrical lines and equipment, and to apply hazardous energy controls(lockout & tagout).

Scope:

The procedure will cover electrical line and equipment deenergization and hazardous energy controls for the following:

A. A scheduled outage for PWC, Code 600, personnel involving high voltage switching. There can be low voltage switching in addition to the high voltage switching.

B. A scheduled outage for Contractor or PWC, Code 500, personnel involving high voltage switching. There can be low voltage switching in addition to the high voltage switching.

C. A scheduled outage involving multiple, independent, crews involving high voltage switching. There can be low voltage switching in addition to the high voltage switching.

D. An emergency outage for PWC, Code 600; PWC, Code 500; or Contractor personnel involving high voltage switching. There can be low voltage switching in addition to the high voltage switching.

E. PWC, Code 600, personnel deenergizing low voltage equipment and/or conductors.

The above outages can be for any of the following work categories:

A. PM

B. Repair

C. Replace

D. New Installations

E. Test

The work can be on the overhead or underground systems. One to an unlimited number of devices can be involved in a hazardous energy control.

Potential Energy Sources:

1. 34,500 volts, AC, conductors and/or equipment.
2. 11,500 volts, AC, conductors and/or equipment.
3. 4,160 volts, AC, conductors and/or equipment.
4. 600 volt and under, AC, conductors and/or equipment.
5. 125/48/24/12 volt, DC, conductors and/or equipment.
6. Generators

Tools and PPE:
Tools: shotgun stick, Biddle Neon Detex Voltage Detector, AC Touchless Detector(Ex: Mineralac pocket voltage tester), Multimeter, Wiggens voltage tester, Tic Tracer, RED locks, Red Danger Hold Tags, Green Ground Placement Tags, Safety Grounds. PPE: Nomex coveralls, Nomex hood, Nomex switching coat, insulating rubber gloves, insulating rubber sleeves, hard hat, safety glasses, and safety shoes. The class of rubber gloves and sleeves will depend on the exposure voltage as per the following: Class 0 - up to 1,000 volts, Class 1 - up to 7,500 volts, Class 2 - up to 17,000 volts, Class 3 - up to 26,500 volts, Class 4 - up to 36,000 volts.

References:
1. Occupational Safety and Health Standards for General Industry (29 CFR Part 1910); Subpart R, Special Industries; Part 1910.269, Electrical Power Generation, Transmission, and Distribution, paragraphs (d) and (m).

Procedure Audit:
At least once per year, execution of the Hazardous Energy Control(Lockout/Tagout) procedure will be monitored to ensure the procedure is being followed. The procedure inspection can occur at shorter intervals as directed by Code 620. Code 620 will select the individual(s) to perform the procedure check. The only restriction is that the inspector(s) can not be using the specific Hazardous Energy Control(Lockout/Tagout) procedure being audited.

A procedure check will involve monitoring one or more specific Hazardous Energy Control(Lockout/Tagout) procedures from start to finish. All deviations and/or inadquacies will be noted. Upon completion of the process check, the inspector(s) will submit a report to Code 620 detailing his/her observances.

Definitions:
Low Voltage - Voltages 600 volts and below.

High Voltage - Voltages 601 volts and above.

OSHA Qualified Person(19.269) - A person who is trained and able to
(a) distinquish exposed live parts from other parts of electrical equipment
(b) determine the nominal voltage of exposed live parts
(c) determine the minimum approach distances specified in 1910.269, Table R-6

(d) use the proper special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts

PWC, Utilities Department, Electrical Branch, Safety Certified - Personnel who have met the Safety Certification Requirements for WC-5, WG-8, WG-10, and WG-11 Employees. These requirements are included in the Public Works Center, Utilities Branch, Electrical Training Program.

Deenergize/Isolate - Operating switching devices in order to electrically separate a circuit or equipment from all potential energy sources. To be considered deenergized a circuit or equipment will not have a potential different from that of earth.

Energized - Electrically connected to a source of potential difference, or electrically charged, to have a potential significantly different from that of earth.

RED Lock - Red wrapped, brass padlock, used to prevent the operation of a switching device. All RED locks are keyed individually, i.e., no master keys.

RED DANGER HOLD Tag - Heavy weight paper tag, red in color, used to warn personnel that there are people working on the circuit or equipment the tag has been placed on. Pertinent information concerning the tag placement will be written on the tag.

RED DANGER HOLD Tag's Clearance Stub - Detachable portion of a RED DANGER HOLD tag which is retained by the personnel working on a circuit or equipment. An opened energy isolating device can not be closed until the switch operator has the RED DANGER HOLD tag clearance stub which matches the RED DANGER HOLD tag placed on the device.

GREEN GROUND PLACEMENT Tag - Heavy weight paper tag, green in color, used to warn personnel that a ground has been placed on a circuit or equipment. Pertinent information concerning the tag placement will be written on the tag.

GREEN GROUND PLACEMENT Tag's Clearance Stub - Detachable portion of a GREEN GROUND PLACEMENT tag which is kept in a Switching Order Package, or by personnel working on a low voltage circuit or equipment. A ground can not be removed until the the person who will remove the ground has the GREEN

GROUND PLACEMENT tag clearance stub which matches the GREEN GROUND PLACEMENT tag placed on the ground.

Ground - A conducting connection between an electric circuit or equipment and the earth or to some conducting body that serves in place of the earth.

Circuit Ground - One ground placed by WC 622 personnel on a circuit or equipment to verify that the circuit or equipment is, in fact, deenergized. The circuit ground is placed to protect PWC, Utilities Dept., equipment.

Personal Safety Ground - A ground placed by personnel working on a circuit or equipment to protect the people in case the circuit or equipment is inadvertently energized.

Yellow Caution Tag - Plastic tag, yellow in color, used to inform personnel about an unusual condition. Pertinent information concerning the tag placement will be written on the tag.

Yellow Repair Tag - Heavy weight paper tag, yellow in color, used to identify equipment which is defective and requires repair.

Switching Order Package(SOP) - Detailed, step by step, switching procedure to deenergize and reenergize a circuit or equipment. The SOP will state where all locks, tags, and grounds will be placed. The SOP will contain all the documents required to deenergize and reenergize a circuit or equipment.

Code 622.1 - Work Center 622's foreman. WC 622 is the PWC, Utilities Dept., Electrical Distribution Branch, Operations Section.

Switch Operator Leader - Authorized switch operator who has been selected to coordinate the work required to execute a Switching Order Package. The switch operator leader will ensure that all switching and circuit ground hazardous energy control requirements are met. The switch operator leader will be the person who will conduct all necessary meetings with the work crew's worksite representative. If there is only one switch operator, then this person is the switch operator leader.

Worksite Representative - Member of the work crew performing work on a deenergized circuit or equipment who is responsible to ensure all hazardous energy

control requirement at the work site are met. This person will be the point of contact for PWC, Utilities Dept., personnel executing outage procedures.

Employee In Charge - See worksite representative.

Authorizations:

1. High voltage switching - The only personnel authorized to operate a high voltage switching device are those with the following qualifications:
   - A. Be a member of WC 622, or a member of WC 624 under the direct supervision, on site, of an authorized WC 622 representative.
   - B. Be a WG-10 or higher.
   - C. Be a PWC, Utilities Department, Electrical Branch, Safety Certified Employee
   - D. Be a OSHA qualified employee per 1910.269.
   - E. Be intimately familiar with the Hazardous Energy Control(Lockout/Tagout) procedure.
   - F. Be adept at all techniques listed in the Hazardous Energy Control(Lockout/Tagout) procedure, i.e., has demonstrated an ability to do all the high voltage switching techniques without a mistake and without instructions while demonstrating.
   - G. Be able to read, and interpret PWC, Utilities Department, Distribution one line diagrams.

EXCEPTION 1 - Due to the critical importance of NH-94, NH-94 personnel are authorized to operate the vacuum circuit breakers in the NH-94 A and B switchgears. The authorized personnel will meet the following qualifications:
   - A. Be a WG-10 or higher.
   - B. Be a PWC, Utilities Department, Electrical Branch, Safety Certified Employee
   - C. Be a OSHA qualified employee per 1910.269.
   - D. Be intimately familiar with the Hazardous Energy Control(Lockout/Tagout) procedure.
   - E. Be adept at all NH-94 vacuum breaker operation techniques listed in the Hazardous Energy Control(Lockout/Tagout) procedure, i.e., has demonstrated an ability to do all the high voltage switching techniques without a mistake and without instructions while demonstrating.
   - F. Be able to read, and interpret PWC, Utilities Department, Distribution one line diagrams.

EXCEPTION 2 - Code 622.5 personnel will be authorized to operate the 4160 breakers at Pier 11 and Pier 12 substations. The authorized personnel will meet the following qualifications:

A. Be a WG-10 or higher.
B. Be a PWC, Utilities Department, Electrical Branch, Safety Certified Employee
C. Be a OSHA qualified employee per 1910.269.
D. Be intimately familiar with the Hazardous Energy Control(Lockout/Tagout) procedure.
E. Be adept at appropriate breaker techniques listed in the Hazardous Energy Control(Lockout/Tagout) procedure, i.e., has demonstrated an ability to do all the high voltage switching techniques without a mistake and without instructions while demonstrating.

2. Low Voltage Switching - The only personnel authorized to operate a low voltage switching device are those with the following qualifications:

A. Be a member of WC 622, WC 624, WC 627, WC 623, WC 625.
B. Be a WG-10 or higher.
C. Be a PWC, Utilities Department, Electrical Branch, Safety Certified Employee
D. Be a OSHA qualified employee per 1910.269.
E. Be intimately familiar with the Hazardous Energy Control(Lockout/Tagout) procedure.
F. Be adept at all techniques listed in the Hazardous Energy Control(Lockout/Tagout) procedure, i.e., has demonstrated an ability to do all the high voltage switching techniques without a mistake and without instructions while demonstrating.
G. Be able to read and interpret electrical one line, three line, and control drawings.

3. On any particular job no employee or supervisor is authorized to deviate, modify, delete, or ignore any of the rules, procedures, and techniques of the Hazardous Energy Control(Lockout/Tagout) procedure.

Rules:

HAZARDOUS ENERGY CONTROL (LOCKOUT, TAGOUT)

The following general rules govern the Hazardous Energy Control(Lockout/Tagout) procedure. These rules govern all situations where equipment and/or conductors are deenergized in order to be worked on.

General

A. Determine, locate, and open all known sources of electrical energy.
B. Deenergization, lockout, and/or tagout shall be performed only by authorized employees.
C. All employees affected by a deenergization, lockout, and/or tagout shall be notified that the deenergization, lockout, and/or tagout has been completed.
D. Opened high voltage devices shall be rendered inoperable unless their design does not so permit.
E. Automatic and remote control switches, which could cause an opened disconnecting device to close, will be tagged out at the point of control. If possible render the control inoperable as well.
F. Following the application of lockout and/or tagout devices, all potentially hazardous stored or residual energy devices shall be relieved, disconnected, restrained, or otherwise rendered safe. If there is a possibility of reaccumulation of stored energy to a hazardous level, the isolation shall be continually verified till the necessary work is finished, or the possibility of accumulation no longer exists.
G. Do not consider circuits or equipment deenergized and safe to be worked on unless they have been
    isolated (applies to high and low voltage)
    locked and/or tagged (applies to high and low voltage)
    tested for voltage (applies to high and low voltage)
    grounded (applies to high voltage)
H. Before starting work on a circuit or equipment which has been deenergized, locked and/or tagged, and possibly grounded, an authorized employee shall verify the deenergization by testing the equipment or circuit for voltage.

Locks

A. All devices capable of being locked will be locked.
B. Locks for lockout will be provided to the employees.
C. The only locks to be used to lockout an energy isolating device, to allow work on a circuit or equipment, will be the RED locks supplied to the employees.

D. A RED lock may only be used to lockout an energy isolating device to render the device inoperable while a man or crew is working on the circuit or equipment fed by the device. No other use is permitted.
E. Locks shall be applied to hold an isolating device in a "safe" or "off" position.
F. Locks will always be placed to render isolating devices inoperable unless the device's design does not allow a lock to be placed.

Tags

A. In addition to a lock, a tag will always be placed on an energy isolating device. If a lock can not be placed, then only a tag will be affixed to the device.
B. If a device can not be locked out it will be tagged out.
C. The only tag to be used to tagout a device, while a man or crew is working on the circuit or equipment fed by the device, is the RED DANGER HOLD tag.
D. A RED DANGER HOLD tag is to be used only when deenergizing a circuit or equipment to allow personnel to work on the line or equipment.
E. A RED DANGER HOLD tag is not to be used for notes, cautions, warnings or tagging grounds.
F. A GREEN GROUND PLACEMENT tag will be the only tag used to indicate placement of a ground on a circuit or equipment.
G. A GREEN GROUND PLACEMENT tag is not to be used for notes, cautions, warnings, or to tag out an energy isolating device.
H. YELLOW CAUTION or YELLOW REPAIR tags are the only tags to be used for notes, warnings, or cautions.
I. YELLOW CAUTION or YELLOW REPAIR tags will not be used to tag out an energy isolating device or to indicate placement of a ground.
J. RED DANGER HOLD tags placed outdoors, exposed to weather conditions will be placed in plastic, zip locked bags provided to the employees.
K. RED DANGER HOLD tags shall be placed in a manner that will clearly indicate that operation of an energy isolating device from the "safe" or "off" position is PROHIBITED.
L. If a RED DANGER HOLD tag can not be affixed directly to the energy isolating device, then the tag will be placed as close as possible to the device, in a manner that will make the tag immediately

obvious.

M. A GREEN GROUND PLACEMENT tag will be placed as close as possible to the ground, in a manner that will make the tag immediately obvious.

N. RED DANGER HOLD and GREEN GROUND PLACEMENT tags will be registered with the P-1 power controller.

Grounds

A. A protective ground will be placed on all high voltage circuits and/or equipment which have been deenergized to allow work on the circuits and/or equipment.

B. After a high voltage cable or equipment has been determined, BY TESTING, to be deenergized, it must be grounded.

C. If there is a possibility of voltage being induced on cables or equipment being worked on, the cables and equipment must be grounded.

D. Any high voltage circuit or equipment not grounded will be considered energized and will be handled accordingly.

E. PWC Utilities will always place a circuit ground on a high voltage circuit or equipment deenergized to allow work to occur. The work could be done by PWC, Code 600; PWC, Code 500; or a contractor. In any case, PWC Utilities will place a circuit ground.

F. PWC, Code 600; PWC Code 500; and contractors working on Utilities high voltage circuits or equipment can place their own personal safety grounds on the equipment or circuit being work on. The personal safety grounds will be in addition to the circuit ground placed during a switch out as per Item E above.

G. All circuit and personal safety grounds will have a GREEN GROUND PLACEMENT tag placed on them, and the tag will be registered with the P-1 power controller.

Removing RED Locks and RED DANGER HOLD Tags

A. Each lock or tag shall be removed from each energy isolating device by the authorized employee who placed the lock or tag.

Exception 1 - Authorized WC 622 personnel, who are performing the switch back portion of a scheduled outage's Switching Order Package, are authorized to remove locks and tags placed by others who performed the switch out portion of the Switching Order Package. This authorization applies only to those locks and tags placed as per the switch out of a Switching Order Package and are

identified on the outage's fact sheet. If there are any other locks or tags on the energy isolating devices, then the procedure outline in E. below will be followed. Note this exception applies to scheduled outages involving high voltage switching.

Exception 2 - Authorized WC 622 personnel, who are performing the switch back portion of an emergency outage are authorized to remove locks and tags placed by others who performed the switch out portion of the emergency outage. This authorization applies only to those locks and tags placed as per the switch out of an emergency outage and are identified on the outage's fact sheet. If there are any other locks or tags on the energy isolating devices, then the procedure outline in E. below will be followed. Note this exception applies to emergency outages involving high voltage switching.

B. The procedure to remove a lock and/or tag placed on an energy isolating device by someone other than the person who placed the lock and tag is as follows:
   1. The person who finds the lock or tag will contact his or her foreman, or general foreman if the foreman is unavailable.
   2. The foreman, or general foreman, will have the equipment or circuit carefully inspected to ensure no one is working on the equipment or circuit.
   3. The foreman, or general foreman, will verify that the employee who placed the lock and/or tag is not available on base.
   4. The foreman, or general foreman, will check with the P-1 power controller for information the power controller has on the tag.
   5. After steps 2-4 have been completed, and the foreman, or general foreman, is satisfied that (a) no one is working on the equipment or circuit, (b) the employee who placed the lock and/or tag is not available, and (c) all information has been acquired on the lock and/or tag, then the foreman, or general foreman, can direct the lock and/or tag be removed.
   6. The foreman, or general foreman, will make a reasonable effort to contact the employee who placed the lock and/or tag to inform the person that their lock and tag has been removed.
   7. Before the employee who placed the lock and/or tag resumes work, that person's foreman will inform him or her, in person, that their lock and/or tag has been removed.

C. To temporarily remove a lock and/or tag for testing purposes follow the following procedure:

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1. Clear the work area of all tools and equipment.
2. Clear the work area of all employees.
3. Remove the lock and/or tag, and grounds. Reenergize the circuit or equipment. Inform the P-1 power controller that the tag and grounds have been temporarily removed for testing.
4. Perform the required test.
5. Deenergize the circuit or equipment, test the circuit to verify it is deenergized, and re-apply the lock and/or tag and grounds. Inform the P-1 power controller that the tags and grounds have been re-affixed.

Procedures:

A. SCHEDULED OUTAGE FOR PWC, CODE 600, PERSONNEL INVOLVING, BUT NOT LIMITED TO HIGH VOLTAGE SWITCHING.

PROCEDURE OUTLINE

I REQUEST OUTAGE
- A. Use Utility Interruption Form
- B. Request Goes To Code 620.1
- C. Code 620.1 Will Inform Code 622.1

II DEVELOP SWITCHING ORDER PACKAGE(SOP)
- A. Code 622.1 Develops SOP
  1. Code 622.2 can write SOP for NH-94 & NH-95
  2. Code 622.4 can write SOP for pier switching
- B. SOP Consists Of
  1. Request For Utility Interruption
  2. Navy Public Works Center Scheduled Interruption Of Utility Services Notice, “pink” copy
  3. Notes concerning the outage
  4. Switch Out Switching Orders
  5. Switch Back Switching Orders
  6. Lockout/Tagout Fact Sheet
  7. Distribution One Line Diagrams
  8. Outage Safety Briefing Memo
  9. Switch Operator Briefing Memo
  10. Clearance Notice
- C. SOP Is Reviewed
  1. Code 610 will review the SOP
     a. Initials Fact Sheet if SOP is acceptable
  2. Outage Request point of contact will review the SOP
  3. All problems detected in the SOP reviews will be resolved between reviewer and SOP developer

III OUTAGE SAFETY BRIEFING
- A. Held Prior To Isolation Switching Begins
- B. Attendees
  1. Code 622.1
  2. SOP developer

3. Outage Request point of contact
4. Employees assigned to work

C. Topics
1. Work procedures involved in required work
2. Hazards and special precautions involved
3. SOP switch out and ground placement
4. Generator location
5. PPE required by the work
6. Special topics

D. Worksite Representative Designated

E. Employees Assigned To Job Can Discuss Any Meeting Topic And Can Propose Changes To SOP And Job Procedures

F. All Changes To SOP Will Be Penned In On SOP Documents And Will Be Initialed By Code 622.1 And Outage Request Point Of Contact

G. All Sign Safety Briefing Memo

IV SWITCH OPERATOR BRIEFING

A. Held Prior To Any SOP Switching

B. Attendees
1. Code 622.1
2. Authorized switch operators assigned to execute the SOP

C. Topics
1. SOP reviewed
2. Switch operator leader designated
3. Review switching techniques
4. Required PPE
5. Generator locations
6. Special notes and cautions

D. Switch Operator Leader Designated

E. All Sign Switch Operator Briefing Memo

V SWITCH OUT

A. SOP Switching Orders Will Be Executed As Written

B. P-1 Power Controller Will Follow Switching As It Occurs
1. P-1 power controller will stop SOP execution if a discrepancy is detected
2. Switch operator leader and the P-1 power controller will resolve detected discrepancies

C. Switch Operator Leader Has The SOP Folder And Directs The Other Authorized Switch Operators
D. Devices Are Opened Or Closed
E. Locks Are Placed On Energy Isolation Devices, Or The Devices Are Made Inoperable
F. RED DANGER HOLD Tags Are Placed
    1. Tag information given to P-1 power controller
        a. tag number
        b. device tagged
        c. device location
        d. reason tag was placed
        e. name of person the tag was placed for(worksite representative per the Lockout/Tagout Fact Sheet)
        f. name of person who placed the tag
G. If Switch Operators Encounter Problem With The SOP SWITCHING STOPS
    1. Code 622.1, Code 622, or Code 620 is notified
    2. Code 622.1, Code 622, or Code 620 comes to site
    3. Problem is presented and solution is arrived at
    4. Worksite representative and workers are notified of the solution
        a. Workers may refuse to do work if solution is considered unsafe by them
H. After SOP Switch Out Switching Is Completed
    1. Circuits, equipment are tested
    2. Grounds are placed per SOP
    3. GREEN GROUND PLACEMENT tags are placed and P-1 given tag information
        a. tag number
        b. ground location
        c. date and time ground was placed
        d. name of person who placed the ground
I. All Tag Stubs Go In SOP Folder
    1. Switch operator leader checks tag stubs to Fact Sheet

VI WORKSITE MEETING
A. Switch Operator Leader And Worksite Representative Meet At Work Site
B. RED DANGER HOLD Tags' Stubs Are Transferred And

Lockout/Tagout Fact Sheet Is Initialed By Worksite Representative For Each Stub Transferred

C. Worksite Representative Tells Switch Operator Leader If, And How Many, Personal Protective Grounds Will Be Placed
   1. Worksite representative given GREEN GROUND PLACEMENT tags
   2. Worksite representative fills out tags
   3. Switch operator leader records grounds on SOP Fact Sheet
   4. Switch operator leader removes tag stubs and places in SOP folder
   5. P-1 given tag information
      a. tag number
      b. ground location
      c. date and time ground was placed
      d. name of person who placed the ground

D. Clearance Notice Filled Out And Signed

E. Switch Operator Leader Takes SOP Folder To P-1

VII WORK

A. Worksite Representative Informs Employees Of Site Conditions
   1. SOP is completed
   2. What equipment is still energized
   3. Where personal protective grounds will be placed
   4. Any other hazards involved with work

B. Circuit/Equipment Tested And Personal Safety Grounds And Tags Placed

C. Work Completed
   1. Workers will test equipment prior to putting their hands on the gear

D. Personal Safety Grounds And Tags Removed

E. Work Site Check By Worksite Representative
   1. Work is done
   2. All employees clear
   3. All tools put away
   4. All personal grounds and tags are removed
   5. All covers, doors, panels, etc. are in place

F. Worksite Representative Signs the RED DANGER HOLD Tags' Stubs

VIII WORKSITE REPRESENTATIVE GOES TO P-1

A. Worksite Representative Meets With P-1 Power Controller
B. Transfers RED DANGER HOLD Tags And Red Lock Keys
    1. Worksite representative initials Lockout/Tagout Fact Sheet as the tags are transferred
C. Worksite Representative Turns Over GREEN GROUND PLACEMENT Tags In His/Her Possession
    1. P-1 power controller matches tags to stubs in SOP folder
    2. P-1 power controller fills out stub
    3. P-1 power controller puts information in Ground Log Book
D. If RED DANGER HOLD Tags' Stubs Or GREEN GROUND PLACEMENT Tags Are Lost
    1. Worksite representative is responsible
    2. Worksite representative will inspect worksite
    3. Worksite representative will write, and sign, a note stating that the tag or stub is lost, the worksite has been inspected, and all conditions are met to re-energize the circuit and/or equipment
    4. The Fact Sheet is annotated to document that the tag/stub has been lost
E. Release Notice Filled Out And Signed

IX SWITCH BACK

A. P-1 Power Controller Calls Switch Operator Leader To Inform Him/Her That Switch Back Can Occur
B. Grounds Removed
    1. Clearance stubs filled out
    2. Tags cleared with P-1, providing following information
        a. tag number
        b. ground location
        c. date and time ground was removed
        d. name of person who removed ground
C. Switch Back Executed As Written
D. P-1 Power Controller Will Follow Switching As It Occurs
    1. P-1 power controller will stop SOP execution if a discrepancy is detected
    2. Switch operator leader and the P-1 power controller will resolve detected discrepancies
E. Switch Operator Leader Has The SOP Folder And Directs The

Other Authorized Switch Operators
F. Locks removed, Or Devices Made Operable
G. RED DANGER HOLD tags removed
1. P-1 given the following information
a. tag number
b. device tagged
c. device location
d. date and time the tag is removed
e. name of person who removed the tag
H. Devices Are Opened Or Closed
I. All GREEN GROUND PLACEMENT and RED DANGER HOLD Tags And Stubs Go In SOP Folder

X SOP FOLDER TO P-65
A. Switch Operator Leader Takes SOP Folder To P-65
1. Checks that all documents are in the folder
2. Checks that all tags and stubs are in the folder
B. Code 622.1 Obtains The SOP Folder
C. SOP Folder Kept On File For One Year
D. P-1 Power Controller Will Discard His/Her Copy

PROCEDURE DETAILS

SWITCHING ORDER PACKAGE DEVELOPMENT

1. Code 622.1 will be contacted via Code 620.1 to deenergize a circuit and/or equipment. The Request For Utility Interruption Form will be used to ask for an outage.

a) Fill out all requested information on the form.
b) An outage request will not be made verbally.
c) State specifically what circuit, and/or equipment, is to be deenergized.
d) The person designated as the point of contact will be considered the employee in charge and all questions concerning the outage will be directed to this person.

2. Code 622.1, or a person designated by Code 622.1, will develop a Switching Order Package(SOP).

Note - Code 622.4 can write all switching packages involving pier shut downs for repair or preventative maintenance work. Code 622.2 can write all switching packages for NH-94 and NH-95 repair or preventative maintenance work. When Codes 622.2 and 622.4 write a switching package they must follow all the procedures Code 622.1 must follow concerning the SOP.

a) The SOP will consist of
   - ⇒ Request For Utility Interruption
   - ⇒ Navy Public Works Center Scheduled Interruption Of Utility Services Notice, “pink” copy
   - ⇒ Notes concerning the outage
   - ⇒ Switch Out Switching Orders
   - ⇒ Switch Back Switching Orders
   - ⇒ Lockout/Tagout Fact Sheet
   - ⇒ Distribution One Line Diagrams
   - ⇒ Outage Safety Briefing Memo
   - ⇒ Switch Operator Briefing Memo
   - ⇒ Clearance Notice

b) The switch out Switching Orders is a detailed, step by step, procedure, followed in order to deenergize a distribution line and/or equipment. The switching orders will be executed with no deviations. The switch out Switching Orders will
   - ⇒ list each isolating device to be opened, or confirmed open
   - ⇒ list each isolating device to be locked and/or tagged out
   - ⇒ list locations where circuit grounds will be placed
   - ⇒ list all specific techniques to be followed
   - ⇒ list each device opening or closing which will transfer loads from a circuit to be deenergized to an alternate circuit

c) The switch back Switching Orders is a detailed, step by step, procedure, followed in order to energize a distribution line and/or equipment. The switching orders will be executed with no deviations. The switching orders will
   - ⇒ list each circuit ground to be removed
   - ⇒ list each isolating device requiring a lock and/or tag to be removed, and whether the device will be closed or left open
   - ⇒ list the specific techniques to be followed
   - ⇒ list all device openings and closings required to place loads on specific circuits

d) The Lockout/Tagout Fact Sheet documents all pertinent information.

The Fact Sheet will initially have all the following information on it:

⇒ Outage Notice Number - the number on the Scheduled Interruption Notice

⇒ Switching Supervisor's Name - Code 622.1's name at the date and time of the outage

⇒ Date - the date the SOP is developed

⇒ Purpose of the Outage - Indicate what specific circuit and/or equipment is to be deenergized and what work is being performed

⇒ Chief Work Order Number - the work order number for the work to be performed. There is no need to list all the work orders for a job which has numerous work orders, such as a substation PM.

⇒ Outage beginning and ending dates and times - as per the Scheduled Interruption Notice

⇒ list all devices which will have a tag or multiple tags placed on them

⇒ list the location where all circuit ground tags will be placed

⇒ list all potential hazardous energy paths into the work site, including all generators, temporarily placed or permanent facility emergency units

⇒ list the location where all circuit grounds will be placed

All the above information will be included on the initially developed fact sheet. Other parts of the fact sheet will be filled out as the scheduled outage procedure progresses.

e) The Distribution One Line Diagrams clearly mark all devices to be opened, locked, and/or tagged to isolate a circuit and/or equipment. The one line diagrams clearly show where all circuit grounds will be placed. Colored markers will be used to indicate the above information. Separate colors will be used to mark the open/lock/tag and the ground locations.

f) The Outage Safety Briefing Memo initially placed in the SOP will only have the outage identification filled out and will list all special topics requiring discussion.

g) The Switch Operator Briefing Memo initially placed in the SOP will only have the outage identification filled out and will list all special topics requiring discussion.

h) The Clearance Notice placed in the SOP will be blank. This document will be filled out the day of the outage.

i) The person(s) developing the SOP will study the pertinent one line diagrams, review previous SOPs, ask the employee in charge, and make

all necessary field trips in order to collect the following information:

- ⇒ nominal voltage of circuits and/or equipment to be deenergized
- ⇒ circuits and/or equipment at work site which will be energized
- ⇒ where to place grounds, and insure they can be placed at that location
- ⇒ any special hazardous conditions at worksite
- ⇒ current status of all devices to be operated as per SOP
- ⇒ location of facility emergency generators

Code 620.1 will inform the SOP developer about all temporarily placed generators, installed to provide power to selected facilities during the outage.

THE SOP HAS TO BE COMPLETE AND ACCURATE. IF THE SWITCH OPERATORS ENCOUNTER ANY DISCREPANCIES BETWEEN WHAT THE SOP DICTATES AND WHAT THE ACTUAL FIELD CONDITIONS ARE, OR WILL ALLOW, THEN THE OUTAGE CAN BE CANCELED.

3. Once the SOP has been developed, it will be given to a member of Code 610 Electrical Commodity Group for review. The Code 610 person will study the package and either make comments about detected problems or sign and date the Fact Sheet indicating the SOP is approved. The Code 610 reviewer and the SOP developer will resolve all problems the reviewer identifies.

4. At the same time Code 610 receives the SOP for review, a copy of the SOP will be given to the Request for Utility Interruption point of contact. This person will review the SOP to determine if the package meets the needs of the requested outage. If there are any problems the point of contact and the SOP developer will resolve them.

Note - Step 3 and Step 4 affect each other. The SOP developer is responsible to keep the separate reviewers updated on major changes to the SOP as a result of the reviews.

5. After the SOP has been reviewed and approved by Code 610 and the outage's point of contact, the SOP is considered complete. A copy will be sent to the P-1 power controller who will study the SOP to become familiar with the switching involved and the date the SOP is be executed.

OUTAGE MEETINGS

6. During the work day prior to the outage date (Friday being the day for a Saturday or Sunday job), a safety meeting will be held with the employees assigned to the job. If the work center's work load dictates that the safety meeting can not be held on the day prior to the outage, then the safety meeting can be held on the day of the outage. The meeting must be held prior to any isolation switching.

a) Those in attendance will be
- ⇒ Code 622.1, or 622.1's representative
- ⇒ SOP developer
- ⇒ point of contact(the employee in charge) noted on the Request For Utility Interruption Form
- ⇒ all employees assigned to work

b) The meeting's topics will be
- ⇒ the employee in charge will discuss the job and the work procedures involved
- ⇒ the employee in charge and Code 622.1 will discuss the job's hazards and any special precautions required
- ⇒ the SOP developer will discuss the switching and grounding required to isolate the circuit and/or equipment to be worked on. One line diagrams will be made available to the employees so they can follow the switching and grounding specified in the SOP
- ⇒ Code 622.1 will inform the employees where all generators will be temporarily placed and which facilities have emergency generators
- ⇒ the employee in charge will indicate the necessary PPE to perform the work
- ⇒ any special topics requiring discussion

c) If the employee in charge per the Request For Utility Interruption Form will not be at the worksite full time while the work is progressing, then another employee will be selected as the employee in charge during the safety meeting. The employee in charge's name, original or new, will be put on the SOP fact sheet as the worksite representative and will be noted on the Outage Safety Briefing Memo. If the employee in charge changes from the name on the SOP fact sheet, then do the following:
- ⇒ notify Code 622.1 who will have the SOP fact sheet changed and will notify the switch operator of the change. During the weekend or after regular working hours, notify the P-1 power controller who will have the SOP fact sheet changed and will notify the switch operator of the change.

⇒ the employees assigned to the job will be informed of the change

d) Employees assigned to the job are free to discuss any of the safety meeting topics and to propose changes to the work procedures and the SOP. ALL WORKERS HAVE THE RIGHT TO REFUSE ANY UNSAFE WORK. The safety meeting is held to resolve all employee reservations concerning the work. Any changes to the SOP will be penned in and will be initialed by Code 622.1, and the employee in charge. The P-1 power controller will be contacted after the meeting and informed of any SOP changes.

e) Once the safety meeting is over, all attendees will sign the Outage Safety Briefing Memo. This signature indicates that the person

⇒ attended the safety meeting
⇒ understands what work procedures are involved
⇒ understands the hazards and precautions involved
⇒ understands and agrees with the SOP
⇒ understands where all generators will be
⇒ understands the PPE required
⇒ understands all special topics discussed

7. Prior to beginning the SOP switching , Code 622.1 will have a meeting with the authorized switch operator(s) who will perform the work.

a) The meeting topics will be

⇒ review of the SOP. The switch operator(s) will follow the switching orders on one line diagrams to become familiar with the work and to verify the SOP.
⇒ if the SOP requires more than one switch operator, then a lead switch operator is selected. The lead operator should be the Utilities duty electrician. The leader's name will be recorded on the Switch Operator Briefing Memo.
⇒ review the specific switching techniques required by the SOP
⇒ review the required PPE
⇒ where all generators will be temporarily placed and which facilities have emergency generators
⇒ review any special notes or cautions

b) All authorized switch operators attending the meeting will sign the Switch Operator Briefing Memo. This signature indicates that the employee

⇒ attended the switch operator briefing
⇒ understands and agrees with the SOP

⇒ understands what work procedures are involved
⇒ understands the PPE required
⇒ understands where all generators will be
⇒ understands all special notes and cautions involved

c) If a switch operator is added or changed, then the new person will require a briefing. The new person will sign the Switch Operator Briefing Memo after his/her briefing.

d) If the switch operator leader must change, then the WC 622 foreman will select a new one and will so note this change on the Switch Operator Briefing Memo. The duty electrician will be the default selection if the WC 622 foreman can not be contacted to select a new leader.

SWITCH OUT

8. When the switching operations begin, the following procedure is the general process to be followed at each device. The techniques referenced in the SOP cover the exact methods to be followed at each device.

a) After arriving at a device, notify the P-1 power controller.

b) Just prior to operating the device notify the P-1 power controller.

c) Operate the device as per the referenced technique.

d) If the device is an energy isolating device, then render the device inoperable by placing a RED lock or take other measures as per the referenced technique.

e) If a RED DANGER HOLD tag is to be placed

⇒ Provide the necessary information on RED DANGER HOLD tag. Provide all the required information except the release/remove items. Leave no blanks.

⇒ Remove the RED DANGER HOLD tag's clearance stub and tape the RED lock's key to the back of the stub.

⇒ Attach the RED DANGER HOLD tag as per the referenced technique and tag general rules.

⇒ Contact the P-1 power controller and provide the following information:

. tag number
. device tagged
. device location
. reason tag was placed
. date and time the tag was placed
. name of person the tag was placed for(Worksite

Representative per the Lockout/Tagout Fact Sheet)
. name of person who placed the tag

f) Notify P-1 power controller of next destination if there is one.

9. The SOP switch out Switching Orders will be executed. Personnel will wear the listed PPE.

a) Prior to the beginning of any switching, the switch operator leader will contact the P-1 power controller and inform this person that switch out operations for outage XX-XXX will be commencing. Because outage pre-switching can be accomplished a day or more prior to the outage isolation switching, the P-1 controller will have to be notified prior to each switch out execution occurrence.

b) The P-1 power controller will open his or hers SOP and follow the switch out procedure as it occurs, checking each step as it happens.

c) The switch operator leader will have the SOP package. The leader will direct the other switch operators in terms of which switch out step, or steps, the other operators should perform. The leader will insure all switch out steps are performed and are performed in order as per the SOP. The leader will collect all RED DANGER HOLD tags' clearance stubs. The leader will place all RED DANGER HOLD tag information on the outage Fact Sheet.

d) Personnel placing a generator will inform the switch leader and the P-1 power controller when the generator is in place. The switch operator leader will notify the personnel placing a generator when the necessary isolating switching can be accomplished and the generator started.

e) Some switch outs will require many RED DANGER HOLD tags to be placed. For these jobs the lead switch operator may pre-fill out and pre-register with P-1 all the required RED DANGER HOLD TAGS. The rules as per Step 8 will still apply concerning the tags. The leader can not pre-fill out the date and time a tag was placed and who actually placed the tag. The switch operator leader is responsible for all tag logistics when tags are pre-filled out.

f) If the P-1 power operator detects a problem with the switch out execution he/she will stop the procedure. The power controller will contact the lead switch operator and inform him/her that the switch out orders are not being exactly followed. The situation can be resolved between the power controller and the switch operator. Examples of problems that the P-1 controller will notice are

⇒ a step is being executed out of order

⇒ a step has been missed
⇒ a switch operator is at a device not in the switch out orders
⇒ a pre-registered RED DANGER HOLD tag is being placed at the wrong device
⇒ a RED DANGER HOLD tag is being placed which is not mentioned on the outage's fact sheet

g) IF THE SWITCH OPERATORS ENCOUNTER ANY DISCREPANCIES BETWEEN WHAT THE SOP SWITCH OUT ORDERS DICTATES AND WHAT THE ACTUAL FIELD CONDITIONS ARE, OR WILL ALLOW, THEN THE SWITCH OUT PROCESS IS TO STOP. THE OUTAGE WILL BE CANCELED UNLESS THE FOLLOWING STEPS OCCUR.
⇒ In order of preference, Code 622.1, Code 622, or Code 620 will be contacted and will be asked to come on base to resolve the situation.
⇒ The switch operator leader will brief the responding management official on the problem, and will present a solution.
⇒ The management person will either cancel the outage, follow the switch operator's proposed solution, or formulate another solution.
⇒ After a decision has been made, the management person and the switch operator leader will go to the work site and inform the employee in charge and the other employees.
⇒ The employee in charge, or the other employees, have the right to refuse to do the work if they are not satisfied with the safety of the proposed solution to the switch out problem(other than cancel of course).
⇒ If the SOP is to be modified, then a pen and ink change to the switch out orders, the switch back orders, and the fact sheet will be made. The management person and the employee in charge will initial each change to the SOP.
⇒ The P-1 power controller will be informed of the outage cancellation or of the modification to the SOP.

10. Upon completion of the switching, the circuit and/or equipment will be tested to verify the circuit and/or equipment is deenergized. Personnel performing the tests will use a high voltage tester. Before the circuit conductors(or equipment) are checked, test the high voltage tester on a known energized circuit to verify the tester is working. Test each deenergized circuit conductor separately, taking care not to

cross phase during test. If voltage is detected, stop the test and follow the procedure outlined in 9(g) above. If no voltage is indicated, retest the high voltage tester to re-verify it is working properly. Wear listed PPE to test the circuit.

Note - There will be cases where there is no way to test a deenegized circuit short of time consuming equipment dismantling. An example would be a circuit between two grounding oil switches with no transformers connected. In these cases, prior to grounding, the switch operator(s) will visually verify that the isolating devices are open.

11. Once the circuit and/or equipment has been deenergized and tested dead, circuit grounds will be attached at the location(s) specified in the SOP. Each circuit conductor will be grounded. To attach grounds, first connect one ground cable end to station ground, or a grounded structure, then attach the other end to a fiberglass shotgun stick. Using the shotgun stick bleed off any static build up on the circuit conductor. Once the static has been bled off, attach the ground cable to the circuit conductor using the shotgun stick. Repeat for each phase. Wear listed PPE to attach the grounds. Fill out a GREEN GROUND PLACEMENT tag for each ground placed, remove the clearance stub, and attach the tag to the ground. For each ground, contact the P-1 power controller and provide the following information:

⇒ tag number
⇒ ground location
⇒ date and time the ground was placed
⇒ name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log.
The switching operator will place the GREEN GROUND PLACEMENT tag's stub in the SOP folder.

12. Once all the switching, testing, and grounding has been completed, the switch operator leader will verify that he/she has all RED DANGER HOLD tags' clearance stubs, with keys attached, and all GREEN GROUND PLACEMENT tags' stubs as per the SOP's Lockout/Tagout Fact Sheet.

13. The switch operator leader will travel to the work site and meet with the the worksite representative identified on the Fact Sheet. At the work site the switch operator and worksite representative will

a) The switch operator leader will transfer the RED DANGER HOLD tags' clearance stubs, with keys attached, to the worksite representative.

The worksite representative will initial the fact sheet, in the Received column, by the pertinent tag number, for each clearance stub received.

b) The employee in charge will inform the switch operator if, and how many, personal safety grounds will be placed by the work crew. The switch operator leader will give the employee in charge an equal number of GREEN GROUND PLACEMENT tags. The worksite representative will fill out the tag information immediately, tear off the GREEN GROUND PLACEMENT tag's stub, and give all stubs to the switch operator leader who will put the stubs in the SOP folder. The employee in charge will be responsible to ensure that the grounds and GREEN GROUND PLACEMENT tags are placed, and are placed correctly. The switch operator leader will contact the P-1 power controller and provide the following information for each GREEN GROUND PLACEMENT tag:
   - ⇒ tag number
   - ⇒ ground location
   - ⇒ date and time the ground was placed
   - ⇒ name of person who placed the ground

   The P-1 power controller will enter this information in the Ground Tag Log.

c) The switch operator leader will fill out the Clearance Notice and the switch operator leader and the employee in charge will sign the document. The Clearance Notice will be placed in the SOP folder.

14. After the switch operator and worksite representative meeting is over, the switch operator leader will take the SOP folder to P-1 and give it to the P-1 power controller who will hold the folder during the work phase.

WORK

15. Before work commences the employee in charge will review the worksite conditions with the employees. Included in the review will be

a) Acknowledgment that the SOP switchout has been completed and that the work clearance has been issued.
b) What devices, cables, breaker stabs, buses, etc., are still energized.
c) Where personal protective grounds will be placed by the work crew.
d) Any other hazards or cautions involved with the work.

16. After the on site briefing, all personal protective grounds, identified by the employee in charge in Step 15, will be installed and the GREEN GROUND

PLACEMENT tags placed. To attach grounds, first test the circuit and/or equipment for voltage using a high voltage tester to verify the circuit and/or equipment is deenergized. Before the circuit conductors(or equipment) are checked, test the high voltage tester on a known energized circuit to verify the tester is working. Test each deenergized circuit conductors separately, taking care not to cross phase during test. If voltage is detected, stop the test and contact the switch operator leader who will then follow the SOP discrepancy procedure per 9(g). If no voltage is indicated, retest the high voltage tester to re-verify it is working properly. Wear listed PPE to test the circuit. After the circuit/equipment tests deenergized connect the grounds. To connect the ground: connect one ground cable end to station ground, or a grounded structure, then attach the other end to a fiberglass shotgun stick. Using the shotgun stick bleed off any static build up on the circuit conductor. Once the static has been bled off, attach the ground cable to the circuit conductor using the shotgun stick. Repeat for each phase. Wear listed PPE to attach the grounds. The employee in charge is responsible to ensure all the grounds, and their tags, have been placed.

17. Perform the required work.
    a) All workers will test each circuit/equipment for potential prior to placing their hands on the item. Use the testing procedure documented in Step 16. If the worker is not qualified to perform the voltage check, the employee in charge will either perform the test or assign another qualified person to do the check.
    b) If an employee leaves the worksite and returns, then that person will meet with the employee in charge who will brief the employee on the current worksite conditions. This must be done prior to the employee beginning any work.

18. After the work has been completed, the employee in charge will
    a) Verify the work is complete.
    b) Ensure all employees are clear of the circuit/equipment.
    c) Ensure the equipment is clear of all tools, etc.
    d) Ensure all personal protective grounds, placed by the work crew, have been removed and he/she has the GREEN GROUND PLACEMENT tags. The employee in charge will fill out the “Ground Removed By” and the “Time and Date” lines of the tag.
    e) Ensure that all covers, panels, etc., have been put back in place.
    f) Will sign all RED DANGER HOLD tags’ clearance stubs on the line designated “Released By Mr”.

19. The employee in charge will go to building P-1 and will meet with the P-1 power controller.

a) The employee in charge will turn over all RED DANGER HOLD tags' clearance stubs, with keys attached, to the power controller. As the stubs are exchanged, the employee in charge will initial the SOP fact sheet in the Returned column of the appropriate tag.

b) The employee in charge will turn over the GREEN GROUND PLACEMENT tags he/she has. The P-1 power controller will locate the stubs which match the tags. The P-1 power controller will fill out the "Tag Released By" and "Time and Date" lines on the stubs. The P-1 power controller will staple each tag and matching stub together. The P-1 power controller will note in the Ground Tag Log Book

⇒ the date and time the ground tag was turned over by the employee in charge.

⇒ The name of the employee in charge who turned over the GREEN GROUND PLACEMENT tag.

All tags and stubs will be placed in the SOP folder.

c) The P-1 power controller is responsible to verify all RED DANGER HOLD tags' clearance stubs and GREEN GROUND PLACEMENT tags have been returned. If a tag or stub is missing

⇒ RED DANGER HOLD tag's clearance stub - The employee in charge is responsible to locate the stub. If the stub can not be found, then the employee in charge will have to go to the work site and verify a-e of Step 18. The employee in charge will then hand write a note which states he/she has lost the stub, with key attached, and notes that the Step 18 conditions a-e have been re-checked and the conditions are met. The employee in charge will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by the appropriate tag number, the P-1 power controller will state the stub has been lost.

⇒ GREEN GROUND PLACEMENT tag - The employee in charge is responsible to locate the tag. If the tag can not be found, then the employee in charge will go to the site where the ground was placed and verify that the ground has been removed. The employee in charge will hand write a note which states he/she lost the tag and also states the ground has been removed. The employee in charge will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by

the appropriate tag number, the P-1 power controller will state the tag has been lost.

d) After the clearance stub and ground tag logistics are completed, the power controller will take the Clearance Notice out of the SOP folder and will give it to the employee in charge who will fill out the Release Notice section. The P-1 power controller and employee in charge will sign the Release Notice. The Clearance Notice will be separated from the Release Notice. The employee in charge will be given the Clearance Notice and the P-1 power controller will keep the Release Notice, and place it in the SOP folder.

e) The P-1 power controller will sign the fact sheet as Completed.

20. The P-1 power controller will notify the switch operator leader that the SOP is ready for switch back.

SWITCH BACK

21. The switch operator leader will go to P-1 and pick up the SOP folder.

22. Prior to beginning the switch back operations the switch operator leader will contact the P-1 power controller and inform this person that switch back operations for outage XX-XXX will be commencing. The P-1 power controller will open his or hers SOP and follow the switch back procedure as it occurs, checking each step as it happens. Because some outages have pre-switching, and the switch back from these operations can be done at a later date from the energization switching, the P-1 power controller will have to be notified prior to each switch back execution occurrence.

23. All circuit grounds, placed during the switch out, will be removed. At each location

a) Remove the ground.

b) Remove the GREEN GROUND PLACEMENT tag and fill out the "Ground Removed By" and the "Time and Date" lines. Place the tag in the SOP folder.

c) Contact the P-1 power controller and provide the following information

⇒ tag number
⇒ ground location
⇒ date and time the ground was removed
⇒ name of person who removed the ground

The P-1 power controller will record in the Ground Tag Log the last two items.

24. When the switch back switching operations begin, the following procedure is the general process to be followed at each device. The techniques referenced in the SOP cover the exact methods to be followed at each device.

a) After arriving at a device, notify the P-1 power controller.
b) If the device is an energy isolating device, compare the RED DANGER HOLD tag stub to the RED DANGER HOLD tag to verify the device is cleared to operate, and then contact the P-1 power controller and provide the following information:
    ⇒ tag number
    ⇒ device tagged
    ⇒ device location
    ⇒ date and time the tag is removed
    ⇒ name of person who will removed the tag
c) If the device is an energy isolating device, remove the RED DANGER HOLD tag and place it in the SOP folder.
d) If the device is an energy isolating device, remove the red lock, if one was placed, or make the device operable if previously made inoperable.
e) Just prior to operating the device notify the P-1 power controller.
f) Operate the device as per the SOP and referenced technique.
g) Notify P-1 power controller of next destination if there is one.

25. The SOP switching orders for switch back will be executed. Personnel will wear the listed PPE.

a) The switch operator leader will have the SOP package. The leader will direct the other switch operators in terms of which switch out step, or steps, the other operators should perform. The leader will insure all switch back steps are performed and are performed in order as per the SOP. The leader will collect all RED DANGER HOLD tags and place them in the SOP folder.
d) Personnel at generators, placed during the switch out, will communicate with the switch operator leader and P-1 power controller as to when the generator can be stopped. The personnel will also be informed when the isolation switching can be switched back.
e) The switch operator leader is responsible for all tag logistics.
f) If the P-1 power operator detects a problem with the switch out execution he/she will stop the procedure. The power controller will contact the lead switch operator and inform him/her that the switch back orders are not being exactly followed. The situation can be

resolved between the power controller and the switch operator.
Examples of problems that the P-1 controller will notice are

- ⇒ a step is being executed out of order
- ⇒ a step has been missed
- ⇒ a switch operator is at a device not in the switchback orders
- ⇒ a danger hold tag is being cleared from the wrong device per the fact sheet

26. Once the switch back has been completed, the switch operator leader will take the SOP folder to P-65.

a) The switch operator leader will insure the following are in the folder

- ⇒ Request For Utility Interruption
- ⇒ Navy Public Works Center Scheduled Interruption Of Utility Services Notice, “pink” copy
- ⇒ Notes concerning the outage
- ⇒ Switching orders for Switchout
- ⇒ Switching orders for Switchback
- ⇒ Completed, and signed, Lockout/Tagout Fact Sheet
- ⇒ Distribution One Line Diagrams
- ⇒ Signed Outage Safety Briefing Memo
- ⇒ Signed Switch Operator Briefing Memo
- ⇒ Signed Release Notice
- ⇒ All outage tags and stubs

b) The RED DANGER HOLD tag stubs will be stapled to their RED DANGER HOLD tags.

c) The GREEN GROUND PLACEMENT tag stubs will be stapled to their GREEN GROUND PLACEMENT tags.

27. Code 622.1 will pick up the SOP folder and place it in a file cabinet. The SOP will be kept on file for at least one year.

28. The P-1 power controller will dispose of their copy of the SOP.

B. SCHEDULED OUTAGE FOR CONTRACTOR OR PWC, CODE 500, PERSONNEL INVOLVING, BUT NOT LIMITED TO HIGH VOLTAGE SWITCHING.

PROCEDURE OUTLINE

I REQUEST OUTAGE
- A. From ROICC, Code 500, Or Other Contract Administrator
- B. Request Will Be Written
- C. Code 620.1 Will Inform Code 622.1

II DEVELOP SWITCHING ORDER PACKAGE(SOP)
- A. Code 622.1 Develops SOP
- B. SOP Consists Of
  1. Written Outage Request
  2. Navy Public Works Center Scheduled Interruption Of Utility Services Notice, “pink” copy
  3. Notes concerning the outage
  4. Switch Out Switching Orders
  5. Switch Back Switching Orders
  6. Lockout/Tagout Fact Sheet
  7. Distribution One Line Diagrams
  8. Outage Safety Briefing Memo
  9. Switch Operator Briefing Memo
  10. Clearance Notice
- C. SOP Is Reviewed
  1. Code 610 will review the SOP
     a. Initials Fact Sheet if SOP is acceptable
  2. All problems detected in the SOP review will be resolved between reviewer and SOP developer

III OUTAGE SAFETY BRIEFING
- A. Held Thursdays Or Prior To Isolation Switching
- B. Attendees
  1. Code 622.1
  2. SOP developer
  3. ROICC Contract Inspector or Contract Representative; other Contract Administrator
  4. Contractor representative; Code 500 representative

C. Topics
   1. SOP switch out and ground placement
   2. Generator location
   3. Special topics

D. Contractor Or Code 500 Worksite Representative Designated

E. Contractor Or Code 500 Representative Can Discuss Any Meeting Topic And Propose Changes To SOP

F. All Changes To SOP Will Be Penned In On SOP Documents And Will Be Initialed By Code 622.1 And Contractor Or Code 500 Representative

G. All Sign Safety Briefing Memo

IV SWITCH OPERATOR BRIEFING

A. Held Prior To Any SOP Switching

B. Attendees
   1. Code 622.1
   2. Authorized switch operators assigned to execute the SOP

C. Topics
   1. SOP reviewed
   2. Switch operator leader designated
   3. Review switching techniques
   4. Required PPE
   5. Generator locations
   6. Special notes and cautions

D. Switch Operator Leader Designated

E. All Sign Switch Operator Briefing Memo

V SWITCH OUT

A. SOP Switching Orders Will Be Executed As Written

B. P-1 Power controller Will Follow Switching As It Occurs
   1. P-1 power Controller will stop SOP execution if a discrepancy is detected
   2. Switch operator leader and the P-1 power controller will resolve detected discrepancies

C. Switch Operator Leader Has The SOP Folder And Directs The Other Authorized Switch Operators

D. Devices Are Opened Or Closed

E. Locks Are Placed On Energy Isolation Devices, Or The Devices Are Made Inoperable

F. RED DANGER HOLD Tags Are Placed
1. Tag information given to P-1 power controller
a. tag number
b. device tagged
c. device location
d. reason tag was placed
e. name of person the tag was placed for(worksite representative per the Lockout/Tagout Fact Sheet)
f. name of person who placed the tag

G. If Switch Operators Encounter Problem With The SOP SWITCHING STOPS
1. Code 622.1, Code 622, or Code 620 is notified
2. Code 622.1, Code 622, or Code 620 comes to site
3. Problem is presented and solution is arrived at
4. Worksite representative is notified of the solution
a. Worksite representative may cancel the work if solution is considered unsafe by him/her

H. After SOP Switch Out Switching Is Completed
1. Circuits, equipment are tested
2. Grounds are placed per SOP
3. GREEN GROUND PLACEMENT tags are placed and P-1 given tag information
a. tag number
b. ground location
c. date and time ground was placed
d. name of person who placed the ground

I. All Tag Stubs Go In SOP Folder
1. Switch operator leader checks tag stubs to Fact Sheet

VI WORKSITE MEETING

A. Switch Operator Leader And Worksite Representative Meet At Work Site

B. RED DANGER HOLD Tags' Stubs Are Transferred And Lockout/Tagout Fact Sheet Is Initialed By Worksite Representative For Each Stub Transferred

C. Worksite Representative Tells Switch Operator Leader If, And How Many, Personal Protective Grounds Will Be Placed
1. Worksite representative given GREEN GROUND PLACEMENT tags

2. Worksite representative fills out tags
3. Switch operator leader records grounds on SOP Fact Sheet
4. Switch operator leader removes tag stubs and places in SOP folder
5. P-1 given tag information
    a. tag number
    b. ground location
    c. date and time ground was placed
    d. name of person who placed the ground

D. Clearance Notice Filled Out And Signed
E. Switch Operator Leader Takes SOP Folder To P-1

VII WORK

A. Contractor Or Code 500 Is Responsible For Worksite Safety
B. Circuit/Equipment Tested And Personal Safety Grounds And Tags Placed
C. Work Completed
D. Personal Safety Grounds And Tags Removed
E. Work Site Check By Worksite Representative
    1. Work is done
    2. All employees clear
    3. All tools put away
    4. All personal grounds and tags are removed
    5. All covers, doors, panels, etc. are in place
F. Worksite Representative Signs the RED DANGER HOLD Tags' Stubs

VIII WORKSITE REPRESENTATIVE GOES TO P-1

A. Worksite Representative Meets With P-1 Power Controller
B. Transfers RED DANGER HOLD Tags And Red Lock Keys
    1. Worksite representative initials Lockout/Tagout Fact Sheet as the tags are transferred
C. Worksite Representative Turns Over GREEN GROUND PLACEMENT Tags In His/Her Possession
    1. P-1 power controller matches tags to stubs in SOP folder
    2. P-1 power controller fills out stub
    3. P-1 power controller puts information in Ground Log Book
D. If RED DANGER HOLD Tags' Stubs Or GREEN GROUND PLACEMENT Tags Are Lost

1. Worksite representative is responsible
2. Worksite representative will inspect worksite
3. Worksite representative will write, and sign, a note stating that the tag or stub is lost, the worksite has been inspected, and all conditions are met to re-energize the circuit and/or equipment
4. The Fact Sheet is annotated to document that the tag/stub has been lost

E. Release Notice Filled Out And Signed

IX SWITCH BACK

A. P-1 Power Controller Calls Switch Operator Leader To Inform Him/Her That Switch Back Can Occur
B. Grounds Removed
    1. Clearance stubs filled out
    2. Tags cleared with P-1, providing following information
        a. tag number
        b. ground location
        c. date and time ground was removed
        d. name of person who removed ground
C. Switch Back Executed As Written
D. P-1 Power Controller Will Follow Switching As It Occurs
    1. P-1 power controller will stop SOP execution if a discrepancy is detected
    2. Switch operator leader and the P-1 power controller will resolve detected discrepancies
E. Switch Operator Leader Has The SOP Folder And Directs The Other Authorized Switch Operators
F. Locks removed, Or Devices Made Operable
G. RED DANGER HOLD tags removed
    1. P-1 given the following information
        a. tag number
        b. device tagged
        c. device location
        d. date and time the tag is removed
        e. name of person who removed the tag
H. Devices Are Opened Or Closed
I. All GREEN GROUND PLACEMENT and RED DANGER HOLD Tags And Stubs Go In SOP Folder

X SOP FOLDER TO P-65

A. Switch Operator Leader Takes SOP Folder To P-65

1. Checks that all documents are in the folder
2. Checks that all tags and stubs are in the folder

B. Code 622.1 Obtains The SOP Folder

C. SOP Folder Kept On File For One Year

D. P-1 Power Controller Will Discard His/Her Copy

PROCEDURE DETAILS

SWITCHING ORDER PACKAGE DEVELOPMENT

1. An outage will be formally requested.
   a) Contracts administered by ROICC - ROICC will contact Code 622.1 via Code 620.1 to deenergize a circuit and/or equipment. ROICC will use their memo Utility Outage And/Or Utility Connections to make the outage request. ROICC will bring three copies of the memo and Code 620.2 or Code 620.1 will place the Outage Number on each copy. ROICC, Code 620.1, and Code 620.2 will keep one copy.
      ⇒ Fill out all information on the memo. Whenever possible provide sketches.
      ⇒ An outage request will not be made verbally.
      ⇒ State specifically what circuit and/or equipment is to be deenergized.
      ⇒ The person identified as Inspector will be considered the point of contact, and all questions concerning the outage will be directed to this person.
   b) Contracts administered by activities other than ROICC - The contract administrator will contact Code 622.1 via Code 620.1 to deenergize a circuit or equipment. The request will be in writing and will provide the following information
      ⇒ Requested outage date.
      ⇒ Requested outage times, beginning and ending.
      ⇒ Equipment or circuit to be deenergized.
      ⇒ Whenever possible provide sketches.
      ⇒ Contract title and number.
      ⇒ Contractor.

⇒ Contract Administrator's name and phone number.

The person designated as the contract administrator will be considered the point of contact and all questions concerning the outage will be directed to this person. The administrator may initially contact Utilities via phone, but still will be required to submit an outage request in writing before Utilities begins to arrange the outage.

c) Code 500 work - The appropriate supervisor will contact Code 622.1 via Code 620.1 to deenergize a circuit or equipment. The request will be in writing and will provide the following information
   - ⇒ Requested outage date.
   - ⇒ Requested outage times, beginning and ending.
   - ⇒ Equipment or circuit to be deenergized.
   - ⇒ Work identification number(specific, minor, etc.).
   - ⇒ Supervisor's name and phone number.

   The appropriate supervisor will be considered the point of contact and all questions concerning the outage will be directed to this person. The administrator may initially contact Utilities via phone, but still will be required to submit an outage request in writing before Utilities begins to arrange the outage.

2. Code 622.1, or a person designated by Code 622.1, will develop a Switching Order Package(SOP).

a) The SOP will consist of
   - ⇒ ROICC's Utility Outage And/Or Connections memo, or other contract administrator's outage request, or Code 500's outage request
   - ⇒ Navy Public Works Center Scheduled Interruption Of Utility Services Notice, "pink" copy
   - ⇒ Notes concerning the outage
   - ⇒ Switch Out Switching Orders
   - ⇒ Switch Back Switching Orders
   - ⇒ Lockout/Tagout Fact Sheet
   - ⇒ Distribution One Line Diagrams
   - ⇒ Outage Safety Briefing Memo
   - ⇒ Switch Operator Briefing Memo
   - ⇒ Clearance Notice

b) The switch out Switching Orders is a detailed, step by step, procedure, followed in order to deenergize a distribution line and/or equipment. The switching orders will be executed with no deviations. The switch

out Switching Orders will

⇒ list each isolating device to be opened or confirmed open
⇒ list each isolating device to be locked and/or tagged out
⇒ list locations where circuit grounds will be placed
⇒ list all specific techniques to be followed
⇒ list each device opening or closing which will transfer loads from a circuit to be deenergized to an alternate circuit

c) The switch back Switching Orders is a detailed, step by step, procedure, followed in order to energize a distribution line and/or equipment. The switching orders will be executed with no deviations. The switching orders will

⇒ list each circuit ground to be removed
⇒ list each isolating device requiring a lock and/or tag to be removed, and whether the device will be closed or left open
⇒ list the specific techniques to be followed
⇒ list all device openings and closings to place loads on specified circuits

d) The Lockout/Tagout Fact Sheet will document all pertinent information. The Fact Sheet will initially have all the following information on it:

⇒ Outage Notice Number - the number on the Scheduled Interruption Notice
⇒ Switching Supervisor's Name - Code 622.1's name at the date and time of the outage
⇒ Date - the date the SOP is developed
⇒ Purpose of the Outage - Indicate what specific circuit and/or equipment is to be deenergized and what work is being performed
⇒ The contract number and title, or work identification number
⇒ Outage beginning and ending dates and times - as per the Scheduled Interruption Notice
⇒ list all devices which will have a tag or multiple tags placed on them
⇒ list the location where all circuit ground tags will be placed
⇒ list all potential hazardous energy paths into the work site, including all generators, temporarily placed or permanent facility emergency units
⇒ list the location of all circuit grounds will be placed

All the above information will be included on the initially developed fact sheet. Other parts of the fact sheet will be filled out as the scheduled outage procedure progresses.

e) The Distribution One Line Diagrams clearly mark all devices to be opened, locked, and/or tagged to isolate a circuit and/or equipment. The one line diagrams clearly show where all circuit grounds will be placed. Colored markers will be used to indicate the above information. Separate colors will be used to mark the open/lock/tag and the ground locations.

f) The Outage Safety Briefing Memo initially placed in the SOP will only have the outage identification filled out and will list all special topics requiring discussion.

g) The Switch Operator Briefing Memo initially placed in the SOP will only have the outage identification filled out and will list all special topics requiring discussion.

h) The Clearance Notice placed in the SOP will be blank. This document will be filled out the day of the outage.

i) The person(s) developing the SOP will study the pertinent one line diagrams, review previous SOPs, ask the outage's point of contact, and make all necessary field trips in order to collect the following information.

- ⇒ nominal voltage of circuits and/or equipment to be deenergized
- ⇒ circuits and/or equipment at work site which will be energized
- ⇒ where to place grounds, and insure they can be placed at that location
- ⇒ any special hazardous conditions at worksite
- ⇒ current status of all devices to be operated as per SOP
- ⇒ location of facility emergency generators

Code 620.1 will inform the SOP developer about all temporarily placed generators, installed to provide power to selected facilities during the outage.

THE SOP HAS TO BE COMPLETE AND ACCURATE. IF THE SWITCH OPERATORS ENCOUNTER ANY DISCREPANCIES BETWEEN WHAT THE SOP DICTATES AND WHAT THE ACTUAL FIELD CONDITIONS ARE, OR WILL ALLOW, THEN THE OUTAGE CAN BE CANCELED.

3. Once the SOP has been developed it will be given to a member of Code 610 Electrical Commodity Group for review. Code 610 personnel will study the package and either make comments about detected problems or sign and date the Fact Sheet indicating the SOP is approved. The Code 610 reviewer and the SOP developer will resolve all problems the reviewer identifies.

4. After the SOP has been reviewed and approved by Code 610, the SOP is considered complete. A copy will be sent to the P-1 power controller who will study the SOP to become familiar with the switching involved and the date the SOP will be executed.

OUTAGE MEETINGS

5. Every Thursday Code 622.1, or a person designated by Code 622.1, will hold safety meetings with contractors and Code 500 personnel concerning scheduled outages. If, due to the outage's scheduling or an individual's scheduling conflict, a Thursday meeting is not feasible, then a safety meeting will be scheduled for another day prior to executing isolation switching.

a) Those in attendance will be
   - ⇒ Code 622.1, or 622.1's representative
   - ⇒ SOP developer
   - ⇒ ROICC's contract Inspector and/or Construction Representative, or other contract administrator
   - ⇒ Contractor representative; Code 500 representative

b) The topics to be covered will be
   - ⇒ the SOP developer will discuss the switching and grounding required to isolate the circuit and/or equipment to be worked on. One line diagrams will be made available to all meeting participants so they can follow the switching specified in the SOP
   - ⇒ Code 622.1 will state where all generators will be temporarily placed and which facilities have emergency generators
   - ⇒ any special topics requiring discussion

c) The Contractor, or the Code 500 supervisor, will give Code 622.1 the name of the Contractor's, or Code 500's, worksite representative. This name will be put on the SOP fact sheet on the worksite representative line and will be noted on the Outage Safety Briefing Memo. If the worksite representative changes from the name on the SOP fact sheet, the Contractor, ROICC, other contract administrator, or the Code 500 supervisor will do the following:
   - ⇒ notify Code 622.1 who will have the SOP fact sheet changed and will notify the switch operator of the change. During the weekend or after regular working hours, notify the P-1 power controller who will have the SOP fact sheet changed and will notify the switch operator of the change.

d) The Contractor, ROICC, other contract administrator, or Code 500 representatives are free to discuss any of the safety meeting topics and

to propose changes to the SOP developed. The safety meeting is held to resolve all questions concerning the SOP. Any changes to the SOP will be penned in and will be initialed by Code 622.1 and the contractor/Code 500 representative. The P-1 power controller will be contacted after the meeting and informed of any SOP changes.

e) Once the safety meeting is over, all attendees will sign the Outage Safety Briefing Memo. This signature indicates that the person
   - ⇒ attended the safety meeting
   - ⇒ understands and agrees with the SOP
   - ⇒ understands where all generators will be
   - ⇒ understands all special topics discussed

6. Prior to the initiation of the SOP switching orders, Code 622.1 will have a meeting with the authorized switch operator(s) who will perform the work.

a) The meeting topics will be
   - ⇒ review of the SOP. The switch operator(s) will follow the switching orders on one line diagrams to become familiar with the work and to verify the SOP.
   - ⇒ if the SOP requires more than one switch operator, then a lead switch operator is selected. The lead operator should be the Utilities duty electrician. The leaders name will be recorded on the Switch Operator Briefing Memo.
   - ⇒ review the specific switching techniques required by the SOP
   - ⇒ review the required PPE
   - ⇒ where generators will be temporarily placed and what facilities have emergency generators
   - ⇒ review any special notes or cautions

b) All authorized switch operators attending the meeting will sign the Switch Operator Briefing Memo. This signature indicates that the employee
   - ⇒ attended the switch operator briefing
   - ⇒ understands and agrees with the SOP
   - ⇒ understands what work procedures are involved
   - ⇒ understands the PPE required
   - ⇒ understands where all generators will be
   - ⇒ understands all special note and cautions involved

c) If a switch operator is added or changed, then the new person will require a briefing. The new person will sign the Switch Operator Briefing Memo after his/her briefing.

d) If the switch operator leader must change, then the WC 622 foreman will select a new one and will so note this change on the Switch Operator Briefing Memo. The duty electrician will be the default selection if the WC 622 foreman can not be contacted.

SWITCH OUT

7. When the switching operations begin, the following procedure is the general process to be followed at each device. The techniques referenced in the SOP cover the exact methods to be followed at each device.

a) After arriving at a device, notify the P-1 power controller.
b) Just prior to operating the device notify the P-1 power controller.
c) Operate the device as per the referenced technique.
d) If the device is an energy isolating device, then render the device inoperable by placing a RED lock or take other measures as per the referenced technique.
e) If a RED DANGER HOLD tag is to be placed
⇒ Provide the necessary information on RED DANGER HOLD tag. Provide all the required information except the release/remove items. Leave no blanks.
⇒ Remove the RED DANGER HOLD tag's clearance stub and tape the RED lock's key to the back of the stub.
⇒ Attach the RED DANGER HOLD tag as per the referenced technique and tag general rules.
⇒ Contact the P-1 power controller and provide the following information:
. tag number
. device tagged
. device location
. reason tag was placed
. date and time the tag was placed
. name of person the tag was placed for(Worksite Representative per the Lockout/Tagout Fact Sheet)
. name of person who placed the tag
f) Notify P-1 power controller of next destination if there is one.

8. The SOP switch out Switching Orders will be executed. Personnel will wear the listed PPE.

a) Prior to the beginning of any switching, the switch operator leader will contact the P-1 power controller and inform this person that switch out

operations for outage XX-XXX will be commencing. Because outage pre-switching can be accomplished a day or more prior to the outage isolation switching, the P-1 controller will have to be notified prior to each switch out execution occurrence.

b) The P-1 power controller will open his or hers SOP and follow the switch out procedure as it occurs, checking each step as it happens.

c) The switch operator leader will have the SOP package. The leader will direct the other switch operators in terms of which switch out step, or steps, the other operators should perform. The leader will insure all switch out steps are performed and are performed in order as per the SOP. The leader will collect all RED DANGER HOLD tags' clearance stubs. The leader will place all RED DANGER HOLD tag information on the outage Fact Sheet.

d) Personnel placing a generator will inform the switch leader and the P-1 power controller when the generator is in place. The switch operator leader will notify the personnel placing a generator when the necessary isolating switching can be accomplished and the generator started.

e) Some switch outs will require many RED DANGER HOLD tags to be placed. For these jobs the lead switch operator may pre-fill out and pre-register with P-1 all the required RED DANGER HOLD TAGS. The rules as per Step 7 will still apply concerning the tags. The leader can not pre-fill out the date and time a tag was placed and who actually placed the tag. The switch operator leader is responsible for all tag logistics when tags are pre-filled out.

f) If the P-1 power operator detects a problem with the switch out execution he/she will stop the procedure. The power controller will contact the lead switch operator and inform him/her that the switch out orders are not being exactly followed. The situation can be resolved between the power controller and the switch operator. Examples of problems that the P-1 controller will notice are

- ⇒ a step is being executed out of order
- ⇒ a step has been missed
- ⇒ a switch operator is at a device not in the switch out orders
- ⇒ a pre-registered RED DANGER HOLD tag is being placed at the wrong device
- ⇒ a RED DANGER HOLD tag is being placed which is not mentioned on the outage's fact sheet

g) IF THE SWITCH OPERATORS ENCOUNTER ANY DISCREPANCIES BETWEEN WHAT THE SOP SWITCH OUT

ORDERS DICTATES AND WHAT THE ACTUAL FIELD CONDITIONS ARE, OR WILL ALLOW, THEN THE SWITCH OUT PROCESS IS TO STOP. THE OUTAGE WILL BE CANCELED UNLESS THE FOLLOWING STEPS OCCUR.

- ⇒ In order of preference, Code 622.1, Code 622, or Code 620 will be contacted and will be asked to come on base to resolve the situation.
- ⇒ The switch operator leader will brief the responding management official on the problem, and will present a solution.
- ⇒ The management person will either cancel the outage, follow the switch operator's proposed solution, or formulate another solution.
- ⇒ After a decision has been made, the management person and the switch operator leader will go to the work site and inform the worksite representative.
- ⇒ The worksite representative has the right to cancel the work if he/she is not satisfied with the safety of the proposed solution to the switch out problem(other than cancel of course).
- ⇒ If the SOP is to be modified, then a pen and ink change to the switch out orders, the switch back orders, and the fact sheet will be made. The management person and the worksite representative will initial each change to the SOP.
- ⇒ The P-1 power controller will be informed of the outage cancellation or of the modification to the SOP.

9. Upon completion of the switching, the circuit and/or equipment will be tested to verify the circuit and/or equipment is deenergized. Personnel performing the tests will use a high voltage tester. Before the circuit conductors(or equipment) are checked, test the high voltage tester on a known energized circuit to verify the tester is working. Test each deenergized circuit conductor separately, taking care not to cross phase during test. If voltage is detected, stop the test and follow the procedure outlined in 8(g) above. If no voltage is indicated, retest the high voltage tester to re-verify it is working properly. Wear listed PPE to test the circuit.

Note - There will be cases where there is no way to test a deenegized circuit short of time consuming equipment dismantling. An example would be a circuit between two grounding oil switches with no transformers connected. In these cases, prior to grounding, the switch operator(s) will visually verify that the isolating devices are open.

10. Once the circuit and/or equipment has been deenergized and tested dead, circuit grounds will be attached at the location(s) specified in the SOP. Each circuit conductor will be grounded. To attach grounds, first connect one ground cable end to station ground, or a grounded structure, then attach the other end to a fiberglass shotgun stick. Using the shotgun stick bleed off any static build up on the circuit conductor. Once the static has been bled off, attach the ground cable to the circuit conductor using the shotgun stick. Repeat for each phase. Wear listed PPE to attach the grounds. Fill out a GREEN GROUND PLACEMENT tag for each ground placed, remove the clearance stub, and attach the tag to the ground. For each ground, contact the P-1 power controller and provide the following information:

⇒ tag number
⇒ ground location
⇒ date and time the ground was placed
⇒ name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log.
The switching operator will place the GREEN GROUND PLACEMENT tag's stub in the SOP folder.

11. Once all the switching, testing, and grounding has been completed, the switch operator leader will verify that he/she has all RED DANGER HOLD tags' clearance stubs, with keys attached, and all GREEN GROUND PLACEMENT tags' stubs as per the SOP's Lockout/Tagout Fact Sheet.

12. The switch operator leader will travel to the work site and meet with the worksite representative, identified on the Fact Sheet. At the work site the switch operator and the worksite representative will

a) The switch operator leader will transfer the RED DANGER HOLD tags' clearance stubs, with keys attached, to the worksite representative. The worksite representative will initial the fact sheet, in the Received column, by the pertinent tag number, for each clearance stub received.
b) The worksite representative will inform the switch operator if, and how many, personal safety grounds will be placed by the work crew. The switch operator leader will give the worksite representative an equal number of GREEN GROUND PLACEMENT tags. The worksite representative will fill out the tag information immediately, tear off the GREEN GROUND PLACEMENT tag's stub, and give all stubs to the switch operator leader who will put the stubs in the SOP folder. The

worksite representative will be responsible to ensure that the grounds and GREEN GROUND PLACEMENT tags are placed, and are placed correctly. The switch operator leader will contact the P-1 power controller and provide the following information for each GREEN GROUND PLACEMENT tag:

⇒ tag number
⇒ ground location
⇒ date and time the ground was placed
⇒ name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log.

c) The switch operator leader will fill out the Clearance Notice and the switch operator leader and the worksite representative will sign the document. The Clearance Notice will be placed in the SOP folder.

13. After the switch operator and worksite representative meeting is over, the switch operator leader will take the SOP folder to P-1 and give it to the P-1 power controller who will hold the folder during the work phase.

WORK

14. The Contractor or Code 500 will perform the required work. The Contractor or Code 500 will be responsible for all safety rules and regulations at the worksite.

15. After the work has been completed, the Contractor's or Code 500's worksite representative will

a) Verify the work is complete.
b) Ensure all employees are clear of the circuit/equipment.
c) Ensure the equipment is clear of all tools, etc.
d) Ensure all personal protective grounds, placed by the work crew, have been removed and he/she has the Green Ground Placement tags.
e) Ensure that all covers, panels, etc., have been put back in place.
f) Will sign all RED DANGER HOLD tags' clearance stubs on the line designated "Released By Mr".

16. The worksite representative will go to building P-1 and will meet with the P-1 power controller.

a) The worksite representative will turn over all RED DANGER HOLD tags' clearance stubs, with keys attached, to the power controller. As the stubs are exchanged, the worksite representative will initial the SOP

fact sheet in the Returned column of the appropriate tag.

b) The Worksite Representative will turn over the GREEN GROUND PLACEMENT tags he/she has. The P-1 power controller will locate the stubs which match the tags. The P-1 power controller will fill out the "Tag Released By" and "Time and Date" lines on the stubs. The P-1 power controller will staple each tag and matching stub together. The P-1 power controller will note in the Ground Tag Log Book
   - ⇒ the date and time the ground tag was turned over by the worksite representative.
   - ⇒ The name of the worksite representative who turned over the GREEN GROUND PLACEMENT tag.

   All tags and stubs will be placed in the SOP folder.

c) The P-1 power controller is responsible to verify all RED DANGER HOLD tags' clearance stubs and GREEN GROUND PLACEMENT tags have been returned. If a tag or stub is missing
   - ⇒ RED DANGER HOLD tag's clearance stub - The worksite representative is responsible to locate the stub. If the stub can not be found, then the worksite representative will have to go to the work site and verify a-e of Step 15. The worksite representative will then hand write a note which states he/she has lost the stub, with key attached, and notes that the Step 15 conditions a-e have been re-checked and the conditions have been met. The worksite representative will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by the appropriate tag number, the P-1 power controller will state the stub has been lost.
   - ⇒ GREEN GROUND PLACEMENT tag - The worksite representative is responsible to locate the tag. If the tag can not be found, then the worksite representative will go to the site where the ground was placed and verify that the ground has been removed. The worksite representative will hand write a note which states he/she lost the tag and also states the ground has been removed. The worksite representative will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by the appropriate tag number, the P-1 power controller will state the tag has been lost.

d) After the clearance stub and ground tag logistics are completed, the power controller will take the Clearance Notice out of the SOP folder and will give it to the worksite representative who

will fill out the Release Notice section. The P-1 power controller and the worksite representative will sign the Release Notice. The Clearance Notice will be separated from the Release Notice. The worksite representative will be given the Clearance Notice and the P-1 power controller will keep the Release Notice, and place it in the SOP folder.

e) The P-1 power controller will sign the fact sheet as Completed.

17. The P-1 power controller will notify the switch operator leader that the SOP is ready for switch back.

SWITCH BACK

18. The switch operator leader will go to P-1 and pick up the SOP folder.

19. Prior to beginning the switch back operations the switch operator leader will contact the P-1 power controller and inform this person that switch back operations for outage XX-XXX will be commencing. The P-1 power controller will open his or hers SOP and follow the switch back procedure as it occurs, checking each step as it happens. Because some outages have pre-switching, and the switch back from these operations can be done at a later date from the energization switching, the P-1 power controller will have to be notified prior to each switch back execution occurrence.

20. All circuit grounds, placed during the switch out, will be removed. At each location

a) Remove the ground.
b) Remove the GREEN GROUND PLACEMENT tag and fill out the "Ground Removed By" and the "Time and Date" lines. Place the tag in the SOP folder.
c) Contact the P-1 power controller and provide the following information
   - ⇒ tag number
   - ⇒ ground location
   - ⇒ date and time the ground was removed
   - ⇒ name of person who removed the ground

The P-1 power controller will record in the Ground Tag Log the last two items.

21. When the switch back operations begin, the following procedure is the general process to be followed at each device. The techniques referenced in the SOP cover the exact methods to be followed at each device.

a) After arriving at a device, notify the P-1 power controller.
b) If the device is an energy isolating device, compare the RED DANGER HOLD tag stub to the RED DANGER HOLD tag to verify the device is cleared to operate, and then contact the P-1 power controller and provide the following information:
    ⇒ tag number
    ⇒ device tagged
    ⇒ device location
    ⇒ date and time the tag is removed
    ⇒ name of person who will removed the tag
c) If the device is an energy isolating device, remove the RED DANGER HOLD tag and place it in the SOP folder.
d) If the device is an energy isolating device, remove the red lock, if one was placed, or make the device operable if previously made inoperable.
e) Just prior to operating the device notify the P-1 power controller.
f) Operate the device as per the SOP and referenced technique.
g) Notify P-1 power controller of next destination if there is one.

22. The SOP switching orders for switch back will be executed. Personnel will wear the listed PPE.
    a) The switch operator leader will have the SOP package. The leader will direct the other switch operators in terms of which switch out step, or steps, the other operators should perform. The leader will insure all switch back steps are performed and are performed in order as per the SOP. The leader will collect all RED DANGER HOLD tags and place them in the SOP folder.
    d) Personnel at generators, placed during the switch out, will communicate with the switch operator leader and P-1 power controller as to when the generator can be stopped. The personnel will also be informed when the isolation switching can be switched back.
    e) The switch operator leader is responsible for all tag logistics.
    f) If the P-1 power operator detects a problem with the switch out execution he/she will stop the procedure. The power controller will contact the lead switch operator and inform him/her that the switch back orders are not being exactly followed. The situation can be resolved between the power controller and the switch operator. Examples of problems that the P-1 controller will notice are
        ⇒ a step is being executed out of order
        ⇒ a step has been missed

⇒ a switch operator is at a device not in the switchback orders
⇒ a danger hold tag is being cleared from the wrong device per the fact sheet

23. Once the switch back has been completed, the switch operator leader will take the SOP folder to P-65.

a) The switch operator leader will insure the following are in the folder
⇒ ROICC's Utility Outage And/Or Connections memo, or other contract administrator's outage request, or Code 500's outage request
⇒ Navy Public Works Center Scheduled Interruption Of Utility Services Notice, "pink" copy
⇒ Notes concerning the outage
⇒ Switch Out Switching Orders
⇒ Switch Back Switching Orders
⇒ Completed, and signed, Lockout/Tagout Fact Sheet
⇒ Distribution One Line Diagrams
⇒ Signed outage Safety Briefing Memo
⇒ Signed Switch Operator Briefing Memo
⇒ Signed Release Notice
⇒ All outage tags and stubs

b) The RED DANGER HOLD tag stubs will be stapled to their RED DANGER HOLD tags.

c) The GREEN GROUND PLACEMENT tag stubs will be stapled to their GREEN Ground PLACEMENT tags.

24. Code 622.1 will pick up the SOP folder and place it in a file cabinet. The SOP will be kept on file for at least one year.

25. The P-1 power controller will dispose of their copy of the SOP.

C. A SCHEDULED OUTAGE INVOLVING MULTIPLE, INDEPENDENT, CREWS INVOLVING HIGH VOLTAGE SWITCHING.

PROCEDURE OUTLINE

The procedure outline is either **A** or **B** above.

PROCEDURE DETAILS

1. This category involves one of the following scenarios:
   a) Two or more PWC, Code 600, crews working independently on the same deenergized circuit.
   b) Two or more contractor crews working independently on the same deenergized circuit.
   c) Two or more PWC, Code 500, crews working independently on the same deenergized circuit.
   d) Any combination of two or more contractor; PWC, Code 600; or PWC, Code 500; crews working independently on the same deenergized circuit.

2. Each working crew will be treated independently, as if they were the only crew working. The procedures outlined in **A** and **B** will be followed for each group.

3. There are some changes to procedures **A** and **B** due to the logistics of multiple crews working during the outage. The changes or modifications are as follows:
   a) The Switching Order Package will consist of
      ⇒ Each group's written document requesting an outage
      ⇒ Each Navy Public Works Center Scheduled Interruption Of Utility Services Notice, "pink" copy pertaining to the outage
      ⇒ Each group's Notes concerning the outage
      ⇒ Switch Out Switching Orders
      ⇒ Switch Back Switching Orders
      ⇒ Lockout/Tagout Fact Sheet for each group
      ⇒ Distribution One Line Diagrams
      ⇒ Outage Safety Briefing Memo for each group
      ⇒ Switch Operator Briefing Memo
      ⇒ Clearance Notice for each group

      All the above documents will be placed in one SOP folder.
   b) During the switch out, instead of placing one lock and/or tag at each

energy isolating device, do the following

⇒ a multiple locking device will be placed at each device, if possible

⇒ a RED lock for each group will be placed on the multiple locking device

⇒ a RED DANGER HOLD tag will be placed for each group

⇒ Each RED DANGER HOLD tag will be for one specific working group, and this group's information will be placed on the tag and called in to P-1

⇒ all individual group's tags' numbers will be placed on that group's individual Fact Sheet

c) If a switch out discrepancy is found, then each group's worksite representative will have to be contacted per procedures **A** and **B.**

d) The switch operator leader will place all circuit grounds per the SOP as outlined in procedures **A** or **B**. The circuit ground's tag number will be placed on each group's individual fact sheet.

e) Once the switch out is complete, the switch operator leader will travel to each worksite and follow the procedures outlined in **A** or **B**. Note, all GREEN GROUND PLACEMENT tags given to a group's worksite representative will be called in with that specific group's information and will be noted on that specific group's Fact Sheet.

f) The P-1 power controller will notify the switch operator leader that the SOP is ready for switch back only after all worksite representatives have reported to P-1 and followed the procedures outlined in **A** or **B**.

D. AN EMERGENCY OUTAGE FOR PWC CODE 600, PWC CODE 500, OR CONTRACTOR PERSONNEL INVOLVING HIGH VOLTAGE SWITCHING.

An emergency outage is when a circuit, or equipment, has to be immediately deenergized due to a detected problem. PWC Code 600, PWC Code 500, or Contractor personnel can uncover the problem and ask for the emergency outage. An unscheduled outage is an emergency outage. The circuit, or equipment, is to be denergized the same day, and in almost all cases, the same shift as when the problem is detected. Problems which can "wait a day or two" are not emergencies and will follow the procedures outlined in **A-C**. An emergency outage will not allow enough time to follow the formal procedures outlined in **A-C**. The switching documentation will still be done though.

An emergency outage can occur any day of the week and at any time of the day. If the emergency occurs when Code 622.1 is on duty, then Code 622.1 will be responsible to ensure that the pertinent procedures are followed. If the emergency occurs when Code 622.1 is off duty, then the P-1 power controller will be responsible to ensure that the pertinent procedures are followed.

The "emergency" part of this procedure is the switch out. Once the switch out is complete, the intent is, and actual practice should be, to get back to the formal procedures of **A-C**.

There will be situations where there is a clear and present danger to life or property. The personnel who discover, or are first to respond to, the problem <u>are responsible to render the condition safe.</u> Measures taken can include

a) Barricading the area to prevent access to the danger.

b) Safely perform switching to deenergize dangerous equipment or cables. If switching has been performed, then the Emergency Outage procedure and documentation will have to acknowledge this switching has occurred and will have to include the switching in all appropriate documents.

<u>PROCEDURE OUTLINE</u>

HAZARDOUS ENERGY CONTROL (LOCKOUT, TAGOUT)

I REQUEST OUTAGE

A. Request May Be Verbal, Over The Phone, Or Via Two Way Radio

B. There May Not Be A Request In An Unscheduled Outage Circumstance

II DEVELOP SWITCHING ORDER PACKAGE

A. Code 622.1 In Charge

1. Code 622.1 will put SOP folder together
2. The SOP folder will contain
    a. Blank Switch Out Orders sheet
    b. Blank Switch Back Orders sheet
    c. Blank Lockout/Tagout Fact sheet
    d. Blank Safety Briefing Memo
    e. Blank Clearance Notice

B. P-1 Power Controller In Charge

1. P-1 power controller will put SOP folder together
2. The SOP folder will contain
    a. Blank Switch Out Orders sheet
    b. Blank Switch Back Orders sheet
3. Dutyman will have
    a. Blank Lockout/Tagout Fact sheet
    b. Blank Safety Briefing Memo
    c. Blank Clearance Notice

C. Switch Out Orders Written

1. Prior to switching begins
    a. There is time to write switching orders prior to switching
    b. Review the one line diagrams and write orders
2. As switching is occurring
    a. No time to develop written orders prior to switching
    b. Document switching orders verbally given to switch operator(s) while isolation switching is in progress

III SWITCH OUT

A. Code 622.1 In Charge

1. Switch Out Orders
    a. Code 622.1 gives the Switch Out Orders to duty

electrician or other WC 622 personnel. Code 622.1 will monitor the switching as it occurs.
b. Code 622.1 keeps the Switch Out Orders and directs switching

2. Devices are opened or closed
3. Locks are placed on energy isolation devices, or the devices are made inoperable
4. RED DANGER HOLD tags are placed
   a. Tag information given to P-1 power controller
      . tag number
      . device tagged
      . device location
      . reason tag was placed
      . name of person the tag was placed for
      . name of person who placed the tag
5. Switch Out order discrepancies are resolved between Code 622.1 and the switch operator(s)
6. After switch out switching is completed
   a. Circuits, equipment are tested
   b. Grounds are placed
   c. GREEN GROUND PLACEMENT tags are placed and P-1 given tag information
      . tag number
      . ground location
      . date and time ground was placed
      . name of person who placed the ground
7. Code 622.1 writes all appropriate tag information on Lockout/tagout Fact Sheet

B. P-1 Power Controller In Charge

1. P-1 power controller keeps Switch Out Orders
2. P-1 power controller directs the dutyman per Switch Out Orders
3. Duty Electrician performs switching
4. Devices are opened or closed
5. Locks are placed on energy isolation devices, or the devices are made inoperable
6. RED DANGER HOLD tags are placed
   a. Tag information given to P-1 power controller
      . tag number

. device tagged
. device location
. reason tag was placed
. name of person the tag was placed for
. name of person who placed the tag

7. Switch Out order discrepancies are resolved between the P-1 power controller and the dutyman
8. After switch out switching is completed
    a. Circuits, equipment are tested
    b. Grounds are placed
    c. GREEN GROUND PLACEMENT tags are placed and P-1 given tag information
        . tag number
        . ground location
        . date and time ground was placed
        . name of person who placed the ground
9. The dutyman writes all appropriate tag information on Lockout/tagout Fact Sheet

IV WORKSITE MEETING

A. Code 622.1 In Charge

1. Work crew at the work site
    a. Code 622.1 and switch operator(s) travel to work site
    b. Code 622.1 collects all RED DANGER HOLD tags' clearance stubs and all GREEN GROUND PLACEMENT tags' stubs. Code 622.1 checks stubs with Lockout/Tagout Fact Sheet, discrepancies are resolved
    c. Outage Safety Briefing held
        . Switching is explained
        . Cautions are presented
        . Worksite representative designated
        . Safety Briefing memo signed
    d. RED DANGER HOLD tags' stubs are transferred and lockout/tagout fact sheet is initialed by worksite representative for each stub transferred
    e. Worksite representative tells Code 622.1 if, and how many, personal protective grounds will be placed
        . Worksite representative given GREEN

GROUND PLACEMENT tags
. Worksite representative fills out tags
. Code 622.1 records grounds on SOP Fact Sheet
. Code 622.1 removes tag stubs and places in SOP folder
. P-1 given tag information
tag number
ground location
date and time ground was placed
name of person who placed the ground

f. Clearance Notice filled out and signed
g. Worksite representative told to travel to P-1 to transfer stubs after work is complete

2. No work crew at site
a. Switch operator(s) travel to where Code 622.1 is
b. Code 622.1 collects all RED DANGER HOLD tags' clearance stubs and all GREEN GROUND PLACEMENT tags' stubs. Code 622.1 checks stubs with Lockout/Tagout Fact Sheet, discrepancies resolved
c. Code 622.1 contacts outage requester, or appropriate person and arranges a meeting
d. At the meeting perform steps c-g of the work site meeting described in IV.A.1.

B. P-1 Power Controller In Charge
1. Work crew at site
a. Duty electrician travels to work site
b. Outage Safety Briefing held
. Switching is explained
. Cautions are presented
. Worksite representative designated
. Safety Briefing memo signed
c. RED DANGER HOLD tags' stubs are transferred and lockout/tagout fact sheet is initialed by worksite representative for each stub transferred
d. Worksite representative tells dutyman if, and how many, personal protective grounds will be placed
. Worksite representative given GREEN

GROUND PLACEMENT tags
. Worksite representative fills out tags
. Dutyman records grounds on SOP Fact Sheet
. Dutyman removes tag stubs and places in SOP folder
. P-1 given tag information
tag number
ground location
date and time ground was placed
name of person who placed the ground

e. Clearance Notice filled out and signed
f. Worksite representative told to travel to P-1 to transfer stubs after work is complete

2. No work crew at site
a. P-1 power controller contacts outage requester, or appropriate person and arranges a meeting
b. At the meeting perform steps b-f of the work site meeting described in IV.B.1.

V SWITCH BACK ORDERS WRITTEN
A. When In Charge, Code 622.1 Writes Switch Back Orders
B. When In Charge, P-1 Power Controller Writes Switch Back Orders
C. Switch Out Orders Written
1. There is time to write switching orders prior to switching
a. Review the switch out and write orders

VI SOP FOLDER TO P-1
A. Code 622.1 In Charge - SOP Folder Goes To P-1 After Switch Back Orders Are Writen
B. P-1 Power Controller In Charge - Dutyman Will Go to P-1 And Give The P-1 Power Controller
1. Lockout/Tagout Fact Sheet
2. Clearance Notice
3. All tag stubs
C. Follow Procedures Outlined In
1. **A** - Outage for PWC Code 600 personnel
2. **B** - Outage for Contractor or Code 500, personnel

VII SWITCH BACK OCCURS QUICKLY; CODE 622.1 IN CHARGE

A. Code 622.1 Will Keep The SOP Folder

B. Switch Back Orders Will Be Written

1. Prior to switching begins
    a. There is time to write switching orders prior to switching
    b. Review the switch out and write orders
2. As switching is occurring
    a No time to develop written orders prior to switching
    b. Document switching orders verbally given to switch operator(s) while switching is in progress

C. Worksite Representative Inspects Work Area After Work Is Done

1. Work is done
2. All employees clear
3. All tools put away
4. All personal grounds and tags are removed
5. All covers, doors, panels, etc. are in place

D. Worksite Representative Signs the RED DANGER HOLD Tags' Stubs

E. Worksite Representative Meets With Code 622.1

1. Transfers RED DANGER HOLD tags and Red lock keys
    a. Worksite representative initials Lockout/Tagout Fact Sheet as the tags are transferred
2. Worksite representative turns over green ground placement tags in his/her possession
    a. Code 622.1 matches tags to stubs in SOP folder
    b. Code 622.1 fills out stub
    c. Tags cleared with P-1, providing following information
        . tag number
        . ground location
        . date and time ground was removed
        . name of person who removed ground
3. If RED DANGER HOLD tags' stubs or GREEN GROUND PLACEMENT tags are lost
    a. Worksite representative is responsible
    b. Worksite representative will inspect worksite

c. Worksite representative will write, and sign, a note stating that the tag or stub is lost, the worksite has been inspected, and all conditions are met to re-energize the circuit and/or equipment
d. The Fact Sheet is annotated to document that the tag/stub has been lost

4. Release Notice filled out and signed

F. Switch Back

1. Switch Back Orders
   a. Code 622.1 gives the Switch Back Orders to duty electrician or other WC 622 personnel. Code 622.1 will monitor the switching as it occurs.
   b. Code 622.1 keeps the Switch Back Orders and directs switching
2. Grounds Removed
   a. Clearance stubs filled out
   b. Tags cleared with P-1, providing following information
      . tag number
      . ground location
      . date and time ground was removed
      . name of person who removed ground
3. Locks removed, Or Devices Made Operable
4. RED DANGER HOLD tags removed
   a. P-1 given the following information
      . tag number
      . device tagged
      . device location
      . date and time the tag is removed
      . name of person who removed the tag
5. Devices are opened or closed
6. Code 622.1 and Switch operator(s) will resolve all discrepancies

G. All GREEN GROUND PLACEMENT and RED DANGER HOLD Tags And Stubs Go In SOP Folder

H. SOP Folder Placed On File

1 Code 622.1 will ensure all appropriate documents tags, and stubs are in sop folder and will file folder
2. SOP folder kept on file for one year

PROCEDURE DETAILS

Emergency Outage During Day Shift, Code 622.1 In Charge

1. Code 622.1 will be informed that an emergency outage is required. The notification can be in person, over the phone, or over the two way radio. A name will be required as a point of contact. Also obtain the point of contact's phone number.
    a) If the P-1 power controller is the first person contacted about the problem, he/she will relay the information to Code 622.1.
    b) In the case of an unscheduled outage, an outage is not requested per se, the outage has happened.
2. Upon notification that an emergency outage is required, Code 622.1 will put together an SOP folder consisting of the following:
    a) blank Switchout Orders sheet
    b) blank Switchback Orders sheet
    c) blank Lockout/Tagout Fact sheet
    d) blank Safety Briefing Memo
    e) blank Clearance Notice

3. Code 622.1, or a person designated by Code 622.1, will review the appropriate one line diagrams to determine which devices to open, lock, and/or tag to isolate the problem. A Switch Out order set will be hand written on the blank Switch Out Orders sheet. In an extremely rushed instance, or during an unscheduled outage, Code 622.1 may write the Switch Out Orders while he/she is directing the switching.

4. Code 622.1 will
    a) Give the Switch Out Orders to the Duty Electrician, or another member of WC 622, who will then perform the switching. Code 622.1 will monitor the switching as it is occurring. If necessary, a switch operator leader will be designated.
    b) Keep the Switchout Orders and direct WC 622 personnel who will perform work. Code 622.1 will be the switch operator leader.

5. When the switching operations begin, the following procedure is the general process to be followed at each device.

a) After arriving at a device, notify Code 622.1.
b) Just prior to operating the device notify Code 622.1.
c) Operate the device as per the appropriate technique.
d) If the device is an energy isolating device, then render the device inoperable by placing a RED lock or take other measures as per the appropriate technique.
e) If a RED DANGER HOLD tag is to be placed
    ⇒ Provide the necessary information on RED DANGER HOLD tag. Provide all the required information except the release/remove items. Leave no blanks.
    ⇒ Remove the RED DANGER HOLD tag's clearance stub and tape the RED lock's key to the back of the stub.
    ⇒ Attach the RED DANGER HOLD tag as per the appropriate technique and tag general rules.
    ⇒ Contact the P-1 power controller and provide the following information:
        . tag number
        . device tagged
        . device location
        . reason tag was placed
        . date and time the tag was placed
        . name of person the tag was placed for
        (See below concerning what name to use)
        . name of person who placed the tag
f) Notify, or be informed by, Code 622.1 of next destination, if there is one.

6. The switch out procedure will be as follows:
    a) The switch operators will refer to their copies of SOP WC 622 013, Hazardous Energy Control(Lockout, Tagout), for the appropriate techniques to be used at each device.
    b) When filling out the Danger Hold tag
        ⇒ If the worksite representative is known, then put this name as "NameTag Was Placed For".
        ⇒ If a worksite representative is not known but the repair organization is, then put the organization as "Name Tag Was Placed For".
        ⇒ If none of the above is known then put Code 622.1's name as the "Name Tag Was Placed For".

c) Any discrepancies between what the field conditions are or will allow, and what the switch out orders dictate will be resolved between Code 622.1 and the switch operator. The Switch Out Orders will be annotated to reflect all changes.
d) As devices are being opened and RED DANGER HOLD tags placed, Code 622.1 will note the tag numbers on the blank Lockout/Tagout Fact Sheet. Code 622.1 will also fill out the as much of the Fact Sheet header information as possible.

7. Upon completion of the switching, the circuit and/or equipment will be tested to verify the circuit and/or equipment is deenergized. Personnel performing the tests will use a high voltage tester. Before the circuit conductors(or equipment) are checked, test the high voltage tester on a known energized circuit to verify the tester is working. Test each deenergized circuit conductor separately, taking care not to cross phase during test. If voltage is detected, stop the test and inform Code 622.1 who will determine what to do next. If no voltage is indicated, retest the high voltage tester to re-verify it is working properly. Wear listed PPE to test the circuit.

Note - There will be cases where there is no way to test a deenegized circuit short of time consuming equipment dismantling. An example would be a circuit between two grounding oil switches with no transformers connected. In these cases, prior to grounding, the switch operator(s) will visually verify that the isolating devices are open.

8. Once the circuit and/or equipment has been deenergized and tested dead, circuit grounds will be attached at the location(s) specified in the Switch Out orders. Each circuit conductor will be grounded. To attach grounds, first connect one ground cable end to station ground, or a grounded structure, then attach the other end to a fiberglass shotgun stick. Using the shotgun stick bleed off any static build up on the circuit conductor. Once the static has been bled off, attach the ground cable to the circuit conductor using the shotgun stick. Repeat for each phase. Wear listed PPE to attach the grounds. Fill out a GREEN GROUND PLACEMENT tag for each ground placed, remove the clearance stub, and attach the tag to the ground. For each ground, contact the P-1 power controller and provide the following information:

⇒ tag number
⇒ ground location
⇒ date and time the ground was placed
⇒ name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log. Code 622.1 will write all circuit ground tag numbers on the Lockout/Tagout Fact Sheet and will note their location.

9. Once the switch out has been completed
    a) Work crew at the problem site - Code 622.1, or a person designated by him/her, will travel to the site. All switch operators with RED DANGER HOLD and/or GREEN GROUND PLACEMENT tags' clearance stubs will also travel to the site.
        ⇒ Code 622.1 will collect all RED DANGER HOLD tags' clearance stubs and all GREEN GROUND PLACEMENT tags' stubs. These will be compared to the Fact Sheet for discrepancies. The discrepancies will be rectified between Code 622.1 and the switch operators.
        ⇒ Code 622.1 will hold an Outage Safety Briefing with the work crew, if the crew is a Code 600 group, or the the worksite representative, if the crew is other than a Code 600 group. The switching will be explained and any other cautions which are pertinent will be presented. Each topic covered will be circled or hand written on the Safety Briefing Memo. A worksite representative will be designated, and noted on the Safety Briefing Memo. All personnel at the briefing will sign the memo.
        ⇒ Code 622.1 will transfer the RED DANGER HOLD tags' clearance stubs, with keys attached, to the worksite representative. The worksite representative will initial the fact sheet, in the Received column, by the pertinent tag number, for each clearance stub received.
        ⇒ The worksite representative will inform Code 622.1 if, and how many, personal safety grounds will be placed by the work crew. Code 622.1 will give the worksite representative an equal number of GREEN GROUND PLACEMENT tags. The worksite representative will fill out the tag information immediately, tear off the GREEN GROUND PLACEMENT tag's stub, and give all stubs to the Code 622.1 who will put the stubs in the SOP folder. The worksite representative will be responsible to ensure that the grounds and GREEN GROUND PLACEMENT tags are placed, and are placed correctly. The Code 622.1 will contact the P-1 power controller and provide the following information for each GREEN GROUND PLACEMENT tag:

. tag number
. ground location
. date and time the ground was placed
. name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log. If the worksite representative does not know if personal safety grounds will be placed, then he/she will be told to contact Code 622.1 if, later on, personal safety grounds are required. After this notification, Code 622.1 will send a member of WC 622 to handle the GREEN GROUND PLACEMENT tag procedure.

⇒ Code 622.1 will fill out the Clearance Notice and Code 622.1 and the worksite representative will sign the document. The Clearance Notice will be placed in the SOP folder.

⇒ Code 622.1 will tell the worksite representative to travel to P-1 and meet with the power controller to transfer stubs after work has been completed.

b) No work crew at the problem site - All switch operators which have RED DANGER HOLD and/or GREEN GROUND PLACEMENT tags' stubs will meet with Code 622.1 at a place designated by Code 622.1.

⇒ Code 622.1 will collect all RED DANGER HOLD tags' clearance stubs and all GREEN GROUND PLACEMENT tag's stubs. These will be compared to the Fact Sheet for discrepancies. The discrepancies will be rectified between Code 622.1 and the switch operators.

⇒ Code 622.1 will notify the outage's point of contact that the isolation switching has been completed. A meeting between Code 622.1 and the point of contact will be arranged.

⇒ At the meeting

. Code 622.1 will hold an Outage Safety Briefing. The switching will be explained and any other cautions which are pertinent will be presented. Each topic covered will be circled or hand written on the Safety Briefing Memo. If possible a worksite representative will be designated, and noted on the Safety Briefing Memo. All personnel at the briefing will sign the memo.

. The RED DANGER HOLD tags' clearance stubs, with keys attached will be transferred. The worksite representative or

the outage's point of contact will initial the fact sheet, in the Received column, by the pertinent tag number, for each clearance stub received.

. The worksite representative or outage's point of contact will inform Code 622.1 if, and how many, personal safety grounds will be placed by the work crew. Code 622.1 will hand over an equal number of GREEN GROUND PLACEMENT tags. The worksite representative or outage's point of contact will fill out the tag information immediately, tear off the GREEN GROUND PLACEMENT tag's stub, and give all stubs to the Code 622.1 who will put the stubs in the SOP folder. The worksite representative will be responsible to ensure that the grounds and GREEN GROUND PLACEMENT tags are placed, and are placed correctly. The Code 622.1 will contact the P-1 power controller and provide the following information for each GREEN GROUND PLACEMENT tag:

    tag number
    ground location
    date and time the ground was placed
    name of person who placed the ground

    The P-1 power controller will enter this information in the Ground Tag Log. If the worksite representative does not know if personal safety grounds will be placed, then he/she will be told to contact Code 622.1 if, later on, personal safety grounds are required. After this notification, Code 622.1 will send a member of WC 622 to handle the GREEN GROUND PLACEMENT tag procedure.

. Code 622.1 will fill out the Clearance Notice and Code 622.1 and the worksite representative or outage's point of contact will sign the document. The Clearance Notice will be placed in the SOP folder.

. Code 622.1 will stipulate that the worksite representative will travel to P-1 and meet with the power controller to transfer stubs after work has been completed.

10. Once the switch out and worksite meeting have been completed, Code 622.1, or a person designated by him/her, will develop the Switch Back Orders and write them on the blank Switch Back Orders sheet in the SOP folder.

11. Code 622.1 will have the SOP folder delivered to the P-1 power controller who will keep it till the worksite representative arrives to transfer tag stubs.
AT THIS POINT THE EMERGENCY OUTAGE PROCEDURES WILL BE AS PER A(15)-A(28) OR B(14)-B(25).

12. Some emergency work can be completed to fast to allow Steps 10-11 above. In these cases

a) Code 622.1 will still write the Switch Back Orders, however these may be written as Code 622.1 is directing the switch back work.
b) Code 622.1 will retain the SOP folder.
c) After the work, the worksite representative will
⇒ Verify the work is complete.
⇒ Ensure all employees are clear of the circuit/equipment.
⇒ Ensure the equipment is clear of all tools, etc.
⇒ Ensure all personal protective grounds, placed by the work crew, have been removed and he/she has the Green Ground Placement tags.
⇒ Ensure that all covers, panels, etc., have been put back in place.
⇒ Will sign all RED DANGER HOLD tags' clearance stubs on the line designated "Released By Mr".
d) The worksite representative will meet with Code 622.1 at a site arranged between the two.
⇒ The worksite representative will turn over all clearance stubs, with keys attached, to Code 622.1. As the stubs are exchanged, the worksite representative will initial the SOP fact sheet in the Returned column of the appropriate tag.
⇒ The Worksite Representative will turn over the GREEN GROUND PLACEMENT tags he/she has. Code 622.1 will locate the stubs which match the tags. Code 622.1 will fill out the "Tag Released By" and "Time and Date" lines on the stubs. Code 622.1 will contact the P-1 power controller and will provide the following information
.tag number
.device tagged
.device location
.date and time the tag is removed
.name of person who removed the tag
The P-1 power controller will record in the Ground Tag Log the

last two items. All tags and stubs will be placed in the SOP folder.

⇒ Code 622.1 is responsible to verify all RED DANGER HOLD tags' clearance stubs and GREEN GROUND PLACEMENT tags have been returned. If a tag or stub is missing

. RED DANGER HOLD tag's clearance stub - The worksite representative is responsible to locate the stub. If the stub can not be found, then the worksite representative will have to go to the work site and verify the items listed in 12(c). The worksite representative will then hand write a note which states he/she has lost the stub, with key attached, and notes that the conditions in 12(c) have been re-checked and the conditions are met. The worksite representative will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by the appropriate tag number, Code 622.1 will state the stub has been lost.

. GREEN GROUND PLACEMENT tag - The worksite representative is responsible to locate the tag. If the tag can not be found, then the worksite representative will go to the site where the ground was placed and verify that the ground has been removed. The worksite representative will hand write a note which states he/she lost the tag and also states the ground has been removed. The worksite representative will sign the note and the note will be placed in the SOP folder. On the fact sheet, in the Returned column, by the appropriate tag number, Code 622.1 will state the tag has been lost.

⇒ After the clearance stub and ground tag logistics are completed, Code 622.1 will take the Clearance Notice out of the SOP folder and will give it to the worksite representative who will fill out the Release Notice section. Code 622.1 and the worksite representative will sign the Release Notice section of the Clearance Notice. The Clearance Notice will be separated from the Release Notice. The worksite representative will be given the Clearance Notice and Code 622.1 will keep the Release Notice, and place it in the SOP folder.

⇒ Code 622.1 will sign the fact sheet as Completed.

e) Code 622.1 will

⇒ Give the Switch Back Orders and tag stubs to the Duty

Electrician, or another member of WC 622, who will then perform the switching. Code 622.1 will monitor the switching as it is occurring. If necessary, a switch operator leader will be designated.

⇒ Keep the Switch Back Orders and direct WC 622 personnel who will perform the work. Code 622.1 will be the switch operator leader.

f) All circuit grounds, placed during the switch out, will be removed. At each location

⇒ Remove the ground.

⇒ Remove the GREEN GROUND PLACEMENT tag and fill out the "Ground Removed By" and the "Time and Date" lines. Place the tag in the SOP folder.

⇒ Contact the P-1 power controller and provide the following information

. tag number
. ground location
. date and time the ground was removed
. name of person who removed the ground

The P-1 power controller will record in the Ground Tag Log the last two items.

g) When the switch back operations begin, the following procedure is the general process to be followed at each device.

⇒ After arriving at a device, notify the P-1 power controller.

⇒ If the device is an energy isolating device, compare the RED DANGER HOLD tag stub to the RED DANGER HOLD tag to verify the device is cleared to operate, and then contact the P-1 power controller and provide the following information:

. tag number
. device tagged
. device location
. date and time the tag is removed
. name of person who will removed the tag

⇒ If the device is an energy isolating device, remove the RED DANGER HOLD tag and place it in the SOP folder.

⇒ If the device is an energy isolating device, remove the red lock, if one was placed, or make the device operable if previously made inoperable.

⇒ Just prior to operating the device notify Code 622.1.

⇒ Operate the device as per the SOP and referenced technique.
⇒ Notify, or be informed by, Code 622.1 of next destination if there is one.

h) The SOP switching orders for switch back will be executed. Personnel will wear the listed PPE.
⇒ Code 622.1 will be responsible for tag logistics if Code 622.1 retains the Switch Back Orders and stubs. Code 622.1 will distribute the RED DANGER HOLD and GREEN GROUND PLACEMENT tags' stubs as necessary.
⇒ The designated switch operator leader will be responsible for tag logistics if Code 622.1 gives the Switch Back Orders and stubs to this person. The switch operator leader will distribute the RED DANGER HOLD and GREEN GROUND PLACEMENT tags' stubs as necessary.
⇒ The switch operators will refer to their copies of SOP WC 622 013, Hazardous Energy Control(Lockout, Tagout), for the appropriate techniques to be used at each device.

i) Once the switch back has been completed, all tags, stubs, and the Switch Back Orders(if given out by Code 622.1) will be delivered to Code 622.1.

j) Code 622.1 will insure the following are in the SOP folder
⇒ Notes concerning the outage
⇒ Switch Out Switching Orders
⇒ Switch Back Switching Orders
⇒ Completed, and signed, Lockout/Tagout Fact Sheet
⇒ Signed outage Safety Briefing Memo
⇒ Signed Release Notice
⇒ All outage tags and stubs
. Each RED DANGER HOLD tag's clearance stub will be stapled to it's matching RED DANGER HOLD tag.
. Each GREEN GROUND PLACEMENT tag's clearance stub will be stapled to it's matching GREEN GROUND PLACEMENT tag.

k) Code 622.1 place the SOP folder in a file cabinet. The SOP will be kept on file for at least one year.

<u>Emergency Outage During Night Shifts And Weekends,
P-1 Power Controller In Charge</u>

This procedure will be the same as when Code 622.1 is in charge, except that the P-1 power controller will be the responsible person. The modifications are due to the fact that the P-1 power controller is not mobile. The dutyman will be covering all the functions which would require the P-1 power control to travel to work sites as Code 622.1 would do.

The changes to the Code 622.1 handled Emergency Outage are as follows.

1. P-1 will be notified that an emergency outage is required. If the dutyman is contacted he/she will relay the information to P-1.
    a) In the case of an unscheduled outage an outage is not requested per se, the outage has happened.

2. The P-1 power controller will put together a SOP folder consisting of
    a) Blank Switch Out Orders sheet
    b) Blank Switch Back Orders sheet

3. The dutyman will keep in the duty room blank copies of
    a) Blank Lockout/Tagout Fact sheet
    b) Blank Safety Briefing Memo
    c) Blank Clearance Notice

4. The P-1 power controller will review the one line diagrams and develop the Switch Out Orders and hand write them on the blank Switch Out Orders sheet. The Switch Out Orders will not be given to the dutyman. The P-1 power controller will direct the switching. In an extremely rushed instance, or during an unscheduled outage, the power controller may write the Switch Out Orders while he/she is directing the switching.

5. All switch out communication will be between the P-1 power controller and the dutyman. All discrepancies will be handled between these two people.

6. The dutyman will fill out the Lockout/Tagout Fact Sheet as the switch out progresses.

7. After the switch out has been completed
    a) If a work crew is on site - the dutyman will travel to the work site and handle the worksite meeting. All switch operators with RED DANGER HOLD and GREEN GROUND PLACEMENT tags will meet with the

dutyman at the work site to hand over the stubs to the dutyman.

b) If a work crew is not on site - The P-1 power control will notify the emergency outage's point of contact and arrange a meeting between the point of contact and the dutyman.

8. The dutyman will meet with the outage point of contact and/or worksite representative and

a)The dutyman will hold an Outage Safety Briefing with the work crew, if the crew is a Code 600 group, or the the worksite representative, if the crew is other than a Code 600 group. The switching will be explained and any other cautions which are pertinent will be presented. Each topic covered will be circled or hand written on the Safety Briefing Memo. A worksite representative will be designated, and noted on the Safety Briefing Memo. All personnel at the briefing will sign the memo.

b) The dutyman will transfer the RED DANGER HOLD tags' clearance stubs, with keys attached, to the worksite representative. The worksite representative will initial the fact sheet, in the Received column, by the pertinent tag number, for each clearance stub received.

c) The worksite representative will inform the dutyman if, and how many, personal safety grounds will be placed by the work crew. The dutyman will give the worksite representative an equal number of GREEN GROUND PLACEMENT tags. The worksite representative will fill out the tag information immediately, tear off the GREEN GROUND PLACEMENT tag's stub, and give all stubs to the dutyman who will put the stubs in the SOP folder. The worksite representative will be responsible to ensure that the grounds and GREEN GROUND PLACEMENT tags are placed, and are placed correctly. The the dutyman will contact the P-1 power controller and provide the following information for each GREEN GROUND PLACEMENT tag:

⇒ tag number
⇒ ground location
⇒ date and time the ground was placed
⇒ name of person who placed the ground

The P-1 power controller will enter this information in the Ground Tag Log. If the worksite representative does not know if personal safety grounds will be placed, then he/she will be told to contact Code 622.1 if, later on, personal safety grounds are required. After this notification, Code 622.1 will send a member of WC 622 to handle the

GREEN GROUND PLACEMENT tag procedure.

d) The dutyman will fill out the Clearance Notice and the dutyman and the worksite representative will sign the document. The Clearance Notice will be placed in the SOP folder.

e) The dutyman will tell the worksite representative to travel to P-1 and meet with the power controller to transfer stubs, etc., after work has been completed.

9. After the worksite meeting, the dutyman will travel to P-1 and will give the power controller the

a) Lockout/Tagout Fact Sheet
b) Clearance Notice
c) All tag stubs

All these items will be placed in the SOP folder.

10. The P-1 power controller will review the switch out and develop the switch back orders. The Switch Out Orders will be placed in the SOP folder.

11. **AT THIS POINT THE EMERGENCY OUTAGE PROCEDURES WILL BE AS PER A(15)-A(28) OR B(14)-B(25).**

E. PWC CODE 600 PERSONNEL DEENERGIZING LOW VOLTAGE EQUIPMENT AND/OR CONDUCTORS.

1. A Switching Order Package is not required for switching only low voltage devices.

2. Determine, locate, and open all known sources of electrical energy. Refer to available electrical one line diagrams, construction drawings, or trace circuits.

3. Only an authorized employee per the Authorizations section will operate isolating devices and place locks and tags.

4. A RED DANGER HOLD tag will always be placed.
   a) Follow the tag general rules.
   c) Provide the necessary information on RED DANGER HOLD tag. Provide all the required information except the release/remove items. Leave no blanks.
   b) Remove and retain the RED DANGER HOLD tag's clearance stub.
   c) Contact the P-1 power controller and provide the following information:
      ⇒ tag number
      ⇒ device tagged
      ⇒ device location
      ⇒ reason tag was placed
      ⇒ date and time the tag was placed
      ⇒ name of person the tag was placed for
      ⇒ name of person who placed the tag

5. When possible the energy isolating device will be
   a) locked, per the general lock rules. The authorized employee will place his/her RED lock.
   b) made inoperable if a lock can not be placed

6. The authorized person who places a lock and/or tag will retain the RED lock's key and/or the RED DANGER HOLD tag's clearance stub.

7. If the job is to be performed by a crew, then one group lock and one group tag will be placed by a designated authorized person. This person will know all those employees which fall under the protection of the group lock and/or tag.
   a) Members of the work crew may, if they wish, place their RED locks on

the energy isolating device in addition to the authorized employee's RED lock. The authorized employee will place a multiple locking device and all RED locks will be placed on this.

b) If during the execution of a job the authorized employee who placed Red locks and RED DANGER HOLD tags has to leave and another authorized employee will take his or her place then the following procedure will be followed:
    1. All other personnel in the crew will stand clear.
    2. The employee who has to leave will remove his or her Red locks and RED DANGER HOLD tags, clearing them with the P-1 power controller.
    3. The employee who will replace the leaving person will place his or her Red locks and RED DANGER HOLD tags, registering them with the P-1 power controller.

8. If more than one crew will be working on a piece of equipment or circuit, then each crew's designated authorized employee will place a RED lock on a multiple locking device and each crew's designated authorized employee will place a RED DANGER HOLD tag.

a) The rules per item 7 above will still apply to each individual crew.

9. After the circuit or equipment has been deenergized, the authorized employee will test the circuit or equipment for voltage. If voltage is present, then Step 2 will have to be repeated.

10. Grounding a secondary circuit or equipment is not mandatory. The authorized employee may place grounds at his/her discretion. If a member of a work crew desires a ground be placed, then the authorized employee will place the ground.

a) Fill out a GREEN GROUND PLACEMENT tag for each ground placed and attach the tag to the ground. For each ground contact the P-1 power controller and provide the following information:
    ⇒ tag number
    ⇒ ground location
    ⇒ date and time the ground was placed
    ⇒ name of person who placed the ground

    The P-1 power controller will enter this information in the Ground Tag Log. The designated authorized employee will take off the ground tag's clearance stub and retain it with all RED DANGER HOLD tags' clearance stubs and RED lock keys.

11. Prior to placing their hands on the circuit or equipment, employees will test for voltage.

12. After the required work has been completed, the designated authorized employee will

a) Inspect the work area.
b) Ensures all work tools and equipment are removed.
c) Ensures all equipment is intact and all covers put in place.
d) All crew members are clear of circuit and equipment

13. Only after Step 12 has been completed will the authorized employee

a) Remove all personal safety grounds placed. Contact the P-1 power controller and, for each ground, provide the following information
   ⇒ tag number
   ⇒ ground location
   ⇒ date and time the ground was removed
   ⇒ name of person who removed the ground

   The P-1 power controller will record in the Ground Tag Log the last two items.
b) At each energy isolating device compare the RED DANGER HOLD tag clearance stub in his/her possession to the RED DANGER HOLD tag to verify the device is cleared to operate. Remove the tag and contact the P-1 power controller and provide the following information
   ⇒ tag number
   ⇒ device tagged
   ⇒ device location
   ⇒ date and time the tag is removed
   ⇒ name of person who will removed the tag
c) Remove all RED locks placed and, if applicable, observe that all crew members, who placed a RED lock on a multiple locking device, remove their RED lock. If a member of the work crew has placed a RED lock on a multiple locking device, and that employee is not on site to remove the lock, then the procedure, as outlined in the General Rules, to remove a lock placed by someone else will be followed.
d) Make all isolating devices operable if previously made inoperable.

14. Once Step 11 has been completed, the designated authorized employee will tell all work crew members that the energy isolating devices have been removed and all personnel should consider the equipment or circuit to be energized.

15. The designated authorized employee will close all energy isolating devices previously opened.